

# FITNESS FOR WORK

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LONDON

UNIVERSITY OF LONDON PRESS, LTD.

10 & 11 WARWICK LANE, E.C.4

1928

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Printed in Great Britain for the UNIVERSITY OF LONDON PRESS, LTD.,  
by HAZELL, WATSON AND VINEY, LD, London and Aylesbury.

TO  
MY FRIEND AND TEACHER  
C. S. MYERS





## PREFACE

MORE books are written about unfitness for work than about fitness. For this there may be several reasons. Men's evil manners live in brass. . . . And when we are fit, for work or anything else, we take ourselves for granted. To be at the top of our form is to exclude piling doubts, if they ever present themselves then.

Since it seems that the subjects which entitle the following chapters have been neglected, they may suggest to others the desirability of writing about these themes. Accordingly there is little discussion of matters which have been more adequately treated.

Some critics of a book save time by paraphrasing its preface. To assist them, a few outstanding omissions are therefore summarised. Many factors which obviously increase fitness for work have been neglected. Vocational selection and guidance are barely mentioned.

All-important physiological problems are merely glanced at. Men often work for money, fame, or power, but acquisitiveness, self-display, and self-assertion are not discussed. The study of economy of effort is not treated in detail. Frequent references throughout the book may, however, guide the reader to writings on these subjects.

My thanks are offered to Mr. J. C. Flugel for his kindness in carefully reading all the typescript and making many valuable suggestions ; to Professors C. H. Herford and Henry Clay for help in connection with Chapters IV and VI respectively ; to Dr. W. V. Bingham for permission to use as material for Chapter I an article in the *Journal of Personnel Research* ; to Mr. F. C. Bartlett and Mrs. F. Crawshaw for similar kindness in connection with a paper from the *British Journal of Psychology* ; to Miss Edna M. Yates for assistance with the proofs ; to Miss Madeleine Rée, Mrs. Julius Thompson, and Mr. L. B. Yates for their care in preparing the typescript.

Grateful acknowledgment is due to the University of London and the Committee of

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the International Association for the Study of Human Relations in Industry, for inviting me to deliver, at the London School of Economics and at Baveno, lectures the preparation of which made this book possible.

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*July 1928.*



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# FITNESS FOR WORK

## CHAPTER I

### THE PROBLEMS : CAPACITIES, ABILITIES, AND SKILLS

EVEN to arrange in orderly sequence the numerous factors which favour and hinder fitness for work would probably occupy the space of the present book. It is intended to fill certain gaps in the expositions of others. Hence the material can hardly be dealt with in any strictly logical order, though it naturally suggests some broad divisions, which may be indicated in a few lines.

First, those aspects of successful achievement which lead us, the onlookers, to attribute to the worker the possession of suitable *capacities*, *abilities*, and *skills*. We recognise, compare, and measure these by reference to the actual performance.

Next come the *motives* which lead a person

to select (or drift into, the first being often a euphemism for the second) a particular kind of work, to continue at or to change it, to practise, to take thought, to take lessons, to emulate, and to identify himself, or not, with the work. Obviously, any account of such motives may be valid only for certain places, persons, and moods.

After this the psychological aspects of work, or what work feels like 'from the inside,' will be discussed.

Lastly, different current conceptions of the function of work will be described and compared, and the question will be raised, "Is skill in industry worth while?"

### *Capacities and Abilities favourable to Work*

To discuss these would be to explore the vast subjects of vocational guidance and selection. This will not be attempted here. The reader may be referred to the frequent publications of the Industrial Fatigue Research Board and the National Institute of Industrial Psychology in Great Britain, to the *Journal of Personnel Research* in America, *Psychotech-*



*nische Zeitschrift* and *Industrielle Psychotechnik* in Germany, and to the recent books of Bingham and Freyd,<sup>1</sup> Giese,<sup>2</sup> Griffiths,<sup>3</sup> Kitson,<sup>4</sup> and Myers.<sup>5</sup>

By this time, there is a division of tests into those of *attainment* and of *aptitude*. Attainment is either *knowledge* or *skill*. In Chapter VI the view will be proposed that skill is also a special kind of knowledge. Yet the simpler view that they are separable will suffice here.

This book will not deal with tests of knowledge, which have been adequately treated by Dr. P. B. Ballard in *The New Examiner*.<sup>6</sup> But skill as a factor in fitness for work will be discussed in detail; this for many reasons, a good one being that the word 'skill' is at present used very loosely. We will therefore attempt to consider its nature.

<sup>1</sup> *Procedures in Employment Psychology* (London, 1926).

<sup>2</sup> *Psychotechnische Eignungsprüfungen* (Halle), and *Handbuch der Wirtschaftspsychologie* (Berlin).

<sup>3</sup> *Fundamentals of Vocational Psychology* (New York, 1924).

<sup>4</sup> *The Psychology of Vocational Adjustment* (London, 1925).

<sup>5</sup> *Industrial Psychology in Great Britain* (London, 1926).

<sup>6</sup> London, 1924.

### *The Nature of Skill*

The word 'skill' is used to characterise performances of very different kinds both in work and in play. Indeed, judging from the diverse meanings which it bears in industry alone (from one article I culled nineteen), the term hinders exact thought. Yet it is so delightfully terse—compare it with *Geschicklichkeit*!—and so unlike other words, that it should not be abandoned. But I would suggest that, treating it with more respect, we should apply it to the higher types of performance. The reasons will appear later.

Let us first indicate some senses in which we should like to see the word 'skilled' *not* used.

(a) To describe the work to be done rather than the worker.<sup>1</sup>

<sup>1</sup> I am aware that in industry it is customary to "classify the job, not the man, to pay him for what he is doing, not for what he is able to do." To the wage-payer, it is the obvious classification. But its use would hamper our analysis and cloud the present problems. For, unless there be only one way of doing a skilled job, the actual physiological and psychological events involved in its performance by two

(b) As a label for an occupation which existed as a trade before the modern factory era ; which then demanded much skill and now requires little.

(c) As a label for a collection of operations involving very different degrees of skill, this collection superseding a relatively unitary occupation which once did demand high skill.

(d) To describe an operation in which so-called skilled workers operate in groups. This involves considerable psychological and other complications, as Dr. G. H. Miles<sup>1</sup> has recently pointed out :

“ Either from a sense of comradeship or from fear, the really skilled workers in such a group do not produce to their full capacity. Rates of payment are based on the capability of average workers, and in many cases the earnings within a group are extraordinarily uniform. The resulting waste is multiplied. The capacity

different men may be quite different. So its use in the above ‘ objective ’ sense would merely favour the occurrence of the ambiguities to be mentioned under (c).

<sup>1</sup> G. H. Miles, “ The Acquisition of Muscular Skill in Industry,” *Journal of the National Institute of Industrial Psychology*, 1926, vol. 3, pp. 45 ff.

of the really skilled worker is lowered ; much of the energy of average workers is squandered ; and those below average feel that they are being remorselessly driven."

### *Skill and Output*

In industry the consideration of skill (where it *is* really considered, and not merely assumed) not unnaturally includes an explicit reference to output. But concepts of output vary, and will repay examination.

Sometimes output refers simply to the quantity of articles produced, the quality being taken for granted. The article is either right or wrong. If wrong, it is returned to the worker, who puts it out again.

Such a concept lends itself pleasingly to simple arithmetic and to graphical illustration. Yet it may rejoice the accountant and the economist more than the psychologist. For the standard of quality, being 'all or nothing,' has all the advantages and defects of the simple philosophy which that famous phrase describes.

A looser concept of output implies a com-

bination of qualitative and quantitative criteria ; in which the former are vaguely or never analysed out. In an English investigation of metal-polishing<sup>1</sup> it was found that, there being no minimum standard of quality, some workers were consistently over-polishing, thereby decreasing their output. So it might be that a higher degree of skill and carefulness was displayed by some workers who ranked low on the output chart.

Wherever there is intermingling of desirable quality and desirable quantity, the skill required will be correspondingly complex and variegated. Let us take an example. With the aid of stenographers, indexers, abstracters, and translators, it would be possible to produce, every three months, some kind of book upon any scientific subject. This performance would undoubtedly require skill, a technique of which could be elaborated. But its nature would be entirely different from that involved in producing a book in three years.

<sup>1</sup> E. Farmer, "Motion Study in Metal Polishing," *Industrial Fatigue Research Board, Report No. 15* (London, 1921).

*Skill and Low-grade Habits*

Some so-called skills are merely a fortuitous concurrence of habits. And often some of them are not good habits. Possibly no single one of them is well adapted to the task, and the whole collection is only a make-shift. If this be contrasted with the higher forms of skill (integrations, not mere collections, of responses, and not necessarily of habits only), each response being adapted as perfectly as possible to the task, to describe some industrial occupations as skilled would be flattery.

In England the psychological aspects of bricklaying are sadly darkened by economic and historical ones. Any skill which it evokes is usually displayed by politicians and others in avoiding the subject. The situation seems more cheerful in the United States. So in writing of bricklaying, it may be suggested that Mr. Frank B. Gilbreth's famous analysis<sup>1</sup> shows that the original workmen's performances which he studied could be called skilled only in the popular sense.

<sup>1</sup> *Applied Motion Study*, pp. 105 ff.

Let us now consider skill from the standpoint of psychology and physiology. Skill must be distinguished from *capacity* and *ability*. If I may be allowed to quote from an earlier publication :<sup>1</sup>

“This distinction is not difficult, for the differences are already recognised in the case of those activities which at present are called intellectual. If we learn that an individual, though he once had lessons in Greek, has no skill in using this language, we do not infer that he has no language *capacity*. If, on further examination, we find he reads and speaks English, French, and German with ease, we may reasonably suspect that lack of time or of interest, or bad teaching, may account for his defect. If, later, we find that he knows many Greek words and can use them in correct sentences, we might believe in his *ability*, and would deny only that in this direction he possessed *skill*.

“Skill is obviously ability, but of a special kind, e.g. ability to do a relatively complicated thing easily and well. One hardly speaks of skill in the performance of a

<sup>1</sup> *Skill in Work and Play*, pp. 20-1.

very simple action ; even of a series of such actions.

“These distinctions, applied to language, are obvious. But now let us think in a similar way about the question of muscular skill. How often is it assumed that, because a person *does not* perform certain skilled acts, he *could not* do them ; and that since he has no skill or ability, he has no capacity ! Conversely, how often do we suffer vague talk attributing a natural gift or ‘instinct’ for games to persons who from their youth up have done little else than cultivate them, and about whom the only puzzle is why, with all this practice, they do not play still better ! The precise mutual relations of muscular capacity, ability, and skill offer many interesting problems to the sceptic who is not content merely to admire and to invoke semi-theistic explanations of middling performances.”

I would suggest the utility of reserving the word ‘skill’ for the higher grades of performance. To say that a man can run does not necessarily imply that he possesses skill in running. But if he has learnt a good way to use his limbs, to regulate his breathing, to



sprint at a particular point or moment, and if he has learnt all this with respect to different kinds of track, different lengths of race, and different classes of competition, he may be said to possess skill in running races. This would also be true if he had acquired such ability in a blinder and less intellectual way,<sup>1</sup> but that fact is irrelevant here.

The concept of skill which is proposed is that of *integration of well-adjusted performances*, rather than a tying together of mere habits. In man, at least, skill is acquired and fused with natural aptitude.

Here it is possible tentatively to apply a distinction, drawn by Professor C. E. Spearman in the cognitive sphere, between reproduction and education, though we must not commit ourselves without further evidence to the belief that these principles do in fact rule in this sphere, or that they are the only ones. Skill implies habits, but they must be supplemented, modified, and controlled by education. For example, the 'pattern' dis-

<sup>1</sup> *Skill in Work and Play*, pp. 37-45.

cussed on page 28 may imply the eduction of relations of higher order.<sup>1</sup>

### *Skill and Reflex Actions*

Those reflex mechanisms which contribute to balance, to posture,<sup>2</sup> and to the efficient co-ordination of action are an important basis of skill. He who does not possess efficiently co-ordinated reflexes is likely to be less skilled than his more fortunate brother. Yet here the relation of acquired to inherited ability is complex. Race, education, dress, occupation, and transient fashion notoriously affect even such a fundamental activity as walking.

### *Skill and Instinct*

If man be compared with other animals, it seems that, while some of them inherit a high degree of skill, he does not. Birds

<sup>1</sup> Cf. C. Spearman, *The Nature of Intelligence and the Principles of Cognition* (London), 1923, pp. 63 f. M. Gopalaswami, "'Intelligence' and Motor Learning," *British Journal of Psychology*, 1923, xiv, pp. 274-90.

<sup>2</sup> Cf. Magnus, Croonian Lecture, *Proceedings of the Royal Society*, 1925, vol. 98B, p. 339. C. Lovatt Evans, *Recent Advances in Physiology* (London, 1925).

inherit skill in nest-building, the kingfisher building one type, the swallow another, selecting, moreover, different material. In contrast, man is notoriously helpless at birth. The skills which he acquires depend almost entirely upon his social and material environment. Thus in England nowadays an active young town-dweller is more likely than a countryman to be able to swim, a reversal of the former situation. And the way in which he swims will probably reflect prevalent fashion or his teacher's views.

A creature like the bird may, of course, fuse an acquired skill with its inherited skill.<sup>1</sup> Yet the individual modification of such inherited skill is relatively small, compared with similar possibilities in man.<sup>2</sup>

<sup>1</sup> Cf. J. Arthur Thomson, "The Mind of the Bird," in *Radio Times*, October 22nd, 1926, p. 221, for a discussion of this in relation to the song-thrush's skill in breaking snail shells on its stone anvil.

<sup>2</sup> These facts are relevant to the question of whether man possesses an instinct of constructiveness. One may justly ask "Constructiveness for what?" Is it constructiveness for anything or for special things? If for special things, what are they?

It should not be forgotten here that the highly skilled performer impresses his own personal stamp upon the product. In painting, sculpture, surgery, pottery, football, and dancing, the highly skilled perform with a characteristic style. In so doing they are creators.

Instinct, then, probably plays a relatively unimportant rôle in human skill. It may, however, exert enormous driving force in impelling a person to strive to acquire skill, in the face of difficulty and discouragement.<sup>1</sup>

### *Skill and Habit*

We have already noticed that collections of habits may masquerade as skill. Now, skill is largely composed of habits. But in skill worth the name they are of a special kind. They cause adequate adaptation. And when the conditions demanding adaptation are complicated they interact so that the whole skilled action is not the mere sum of its parts. A learner of lawn tennis may easily acquire many useful separate habits, e.g. standing

<sup>1</sup> This subject will be discussed more fully in Chapter III.



correctly, when waiting to receive the service, gripping the racquet, and holding it in the right position. But if these habits are specific responses to specific situations, an expert opponent will speedily present a situation to which these responses are unfitted.

Skill, as distinct from habit, involves the ability to be aware of and to correct faulty adjustment. A surgeon's or automobile driver's skill implies this. While it consists partly of habits, skill permits immediate interference with any single habit or combination of them. And this makes it difficult to study. Some disputes about skill in industry are unnecessarily acrimonious because these facts are not realised.

For example, by simplifying the processes in certain tasks a person may be trained in a few days (instead of, as formerly, a few months) to perform them. By the new method the task may be done as well as or better than by the old one.

But more may have been learnt—for good or ill—by the old method. The habits in the new task may be only a few of those in the

old one. Moreover, they may be completely different habits. So the skilled worker is often aggrieved by the assumption that his work can be learned in a short time. And if his work be highly skilled in the sense in which we have used this term, he is justified. Yet many statements about skill are part of a technique which employs it as a bargaining asset. Obviously the study of skill as a political pawn will throw little light upon its ultimate nature. The different factors which are rightly and wrongly classified as skill in industrial occupations will be discussed later in this chapter.

### *Patterning a Characteristic of Skill*

A highly skilled action is distinguished by the integration of the part-actions. These whole-patterns often express inimitably the individuality of the performer. This can be seen on comparing the movements of two experts who are alleged to be performing the same dance. The separate steps which compose their dance bear the same names, yet the performance has an individual quality. And it

is unlikely that the separate steps are ever fused into a dance without being thereby changed.

Accompanying this type of skilled action there is often awareness of higher units in the performance. This awareness determines the character of the part-actions before they are executed. It is like the production of accent and stress in speech, song, or music. When the sentence or phrase is initiated, the performer, aware of the whole, determines the parts by means of this awareness.

This patterning acts upon reflexes, instincts, and habits. But often in employing habits it transmutes them into actions less fixed and more adapted to the situation.

### *Knack*

Probably a particular type of pattern is the knack of doing certain things. Concerning this Mr. Vivian Caulfeild, in his book *How to Ski*,<sup>1</sup> writes most interestingly. He defines knack as "the ability to perform easily a rapid and accurate co-ordinated movement of a number of muscles," and continues :

<sup>1</sup> London, 1924, pp. 10-12.

“If this movement is an unaccustomed one, the ability to perform it properly is only attainable by long practice.

“The action of throwing, for instance, requires knack. It is this which makes it so difficult to learn to throw with the left hand, even though one already has the ability to move the left arm with quite sufficient strength and speed, and knows not only how the movement should be made, but even *how it feels* to make it with the other hand. Writing is another excellent example of knack.

“In ski-running nothing which can strictly be called knack comes into play. In this sport the *voluntary* muscular movements (as distinguished from the involuntary ones used in keeping the balance) are neither complicated nor unusual, and, except in jumping, they need seldom be rapid. Any difficulty in learning them is due partly to the disturbing effect on one's clear-headedness of the speed at which one is travelling, and partly to the fact that some of the movements, though simple in themselves, are almost the reverse of those one's natural instinct would prompt one to make in the circumstances. This difficulty, of course, diminishes with practice,



but an effort of will goes just as far as, or even farther than, practice towards overcoming it. Were it not for this difficulty, a man who had been told the right way to perform the various manœuvres employed in ski-ing might very well do them fairly correctly the first time he tried (as many people actually do), while no amount of strength, activity, intelligence, or confidence would enable him, if right-handed, to throw or write properly with his left hand without long practice."

Knack, then, is the ability to impose a special desirable, well-adapted type of pattern upon one's behaviour. Possibly, as Mr. Caulfeild suggests, speed is an essential element (there might, too, be others) in 'knack.'<sup>1</sup> The flick and the jerk when performed deliberately and usefully are such patterns. In throwing a ball, a number of muscle-groups must co-operate, simultaneously and successively, *very quickly*. The succession of events which constitute the performance is suddenly quickened up. The leisured semi-breves and minims give place to tense semi-

<sup>1</sup> Cf. Professor A. V. Hill on throwing a ball, *Living Machinery* (London, 1927), pp. 203-6.

quavers and demisemiquavers, the wide folds in the time-fabric ruck into pleats.

### *Skill and Natural Aptitude*

This analysis, then, would describe aptitude for a particular form of skill as based upon well-co-ordinated reflexes, instincts suitable to the task, adapted habits, and the power, or maybe powers, of patterning. This power might be partly innate, partly acquired. Its possession in a high degree is a feature of genius in skill.

Of high-grade skill there may be two different types :

(a) 'Unoriginal.' This adjective describes skill lacking the characteristics mentioned below in (b). It may, of course, have reached a high level of complexity and satisfactory adjustment to different situations. It characterises some industrial processes, and many in the Army and Navy, where predictability of action is a *sine qua non* and originality may be dangerous. Though some 'knacks' may not be original, and may depend upon similar muscular patterns in different persons, yet knack might

enter into such skills, making the whole original.

(*b*) Skill in which there is something personal, new, creative, unique, and difficult or impossible to copy. It may be that this distinction is merely quantitative and that (*b*) is removed from (*a*) only by a series of transitions. Such is the skill of a Pachmann, a Kreisler, or a Pavlova. Recently in Paris, legal action was taken against a dancer on the ground that she had disobeyed her contract by inserting into a dance something not agreed upon. A newspaper comment, remarking that Pavlova need never copyright her interpretation of *Le Cygne*, appreciated perfectly this kind of skill. Rhythm is a particularly good example of patterning, and rhythm in industry may prove to be as important as in music.

### *The Interference of Patterns in Skill*

Connected with this is the interesting fact that clumsiness in a formerly skilled action is sometimes due to the interference caused by learning another pattern, partly similar to the original one, but containing new and antago-

nistic constituents. Superlative skill might immediately establish the independent status of the two patterns. But usually, unless such a separation be consciously effected, they will mutually interfere.

An example occurs in ski-ing. To make a certain 'Christiania swing' one must lean away from the direction of the turn.<sup>1</sup> While this puzzles many beginners, it offers special difficulty to a figure-skater who may have spent years in perfecting the action of leaning automatically *towards* the turn. Conscious separation and recognition of the two requirements, however, is possible. This may then produce, in a person who skis and skates continually, an integration which comprises both.

This example, which is probably matched in industry, shows that a person who is master of only one movement-pattern, however perfect, in a certain sphere of activity may in one sense be less skilled than another who has a choice of several. Yet the first, because of his excellent expression of that one pattern, may

<sup>1</sup> Caulfeild, pp. 178 ff.

be acclaimed as the more skilled. We might perhaps say that his *intensive* skill is greater, his *extensive* skill less. Clearly, these concepts can be related to those of 'patterning,' 'integration,' and 'tying-up of mere habits.'

And here arises the consideration which complicates the discussion of a related subject, intelligence. May special skills exist in a person alongside a general skill? I have discussed this subject, and researches which bear upon it, elsewhere.<sup>1</sup> It is too complicated to be developed here. But we seem justified in believing that though the extensively skilled person may be jack-of-all-trades and master of none, good teaching and intelligent learning might integrate his extensive skill.

### *Propria and Accidents of Skill*

(a) *In play.* It is useful to ask if some features of skill are only accidental while others are essential; whether—to borrow terms from logic—skill has its *accidents* and its *propria*.

When discussing fundamental questions of skill with the average English player of games,

<sup>1</sup> Op. cit., pp. 22 ff.

he often lays almost exclusive stress upon delicate co-ordination of hand and eye, and upon the timing of complex muscular action to meet a momentary combination of external events. Often such very delicate timing is supremely important, but chiefly in hitting or catching a moving ball. It enters less into many kinds of 'postural' skill, and certainly less into industry. For this reason I believe that the scientific investigator of skill should put ball-games late, not early, in his programme of study. Seldom does the workman have to catch his material as it whizzes past him, except occasionally in bricklaying. And perhaps even this picturesque touch is dispensable.

In many skills the emotional factor is an accident. In the trying circumstances of a match a footballer or lawn-tennis player should obviously be able to keep his head. But such coolness may be but indirectly related to his skill. Some play better when keyed up, fearing nerves less than stodginess; some go to pieces at the thought of spectators; others frankly admit the inspiration of a crowd.

The expression of skill may be either helped or hindered by emotion.

(b) *In work.* In industry, many skilled actions are performed in unvaried conditions, with little or no emotion. For these two reasons it would not be surprising if the problems of skill in industry proved to be easier than those of skill in sport. In a valuable article on "Skill in Industry," Miss Anna Bezanson,<sup>1</sup> of the University of Pennsylvania, writes :

"Considering the glibness with which workmen are pigeon-holed as 'skilled,' 'semi-skilled,' and 'labourers' in many industries, it is surprising to find little definition of what constitutes skill or lack of skill. Everyone takes it for granted that precisely what he means is understood by referring to a workman as possessed of 'skill.'"

With many illustrations drawn from industry, she has collected widely different meanings of accidental factors in skill. We may gratefully utilise her material by quoting some of

<sup>1</sup> *Quarterly Journal of Economics*, 1921-2, vol. 36, pp. 626-45.

them, venturing comments, from the psychologist's point of view, after each one.

(1) *Taking responsibility for a large number of independent decisions.* Though the way in which those decisions are made may involve skill, the acceptance of responsibility is due to other factors.

(2) *Learning about the capabilities of materials.* This is the ordinary process of acquiring knowledge. It may be possessed in a high degree by an unskilled person, who can often acquire the knowledge from observation or from books.

(3) *The acquisition of fairly accurate judgment and knowledge concerning apparently outside jobs* often differentiates expert workers from others less capable.

“Frequently the test seems to be outside the actual job. For instance, the best inside line-man's test in the army—that which really differentiated workmen—was an outside wire-man's job. The fact is that a really good inside wireman does know something of outside wiring.”

In practice this is possibly of great importance. Its significance for theory, however,



is simply that, other things, including intensity, being equal, the greater the extensity of skill the better.

(4) *The ability to transfer knowledge and skill to a different industry and to different material.* This raises in a pleasingly concrete and useful form the vast problem of the relation between general or formal and specific training. More accurately it raises the problem twice, once in the realm of knowledge (including, if it exist, muscular or kinæsthetic knowledge) and once in the realm of skill or power.

In *Skill in Work and Play* (chap. v) I discussed the bearings of these problems upon the present theme. Since then the question has been treated by Professor G. H. Thomson,<sup>1</sup> Dr. P. B. Ballard,<sup>2</sup> and Mr. Charles Fox.<sup>3</sup> The possible 'transfer' of skill is being investigated in the Manchester University Psychological laboratory by Mr. J. N. Langdon and Miss Edna M. Yates.<sup>4</sup>

<sup>1</sup> *Instinct, Intelligence, and Character* (London).

<sup>2</sup> *The Changing School* (London).

<sup>3</sup> *Educational Psychology* (London).

<sup>4</sup> *Memoirs of Manchester Literary and Philosophical Society*, 1928 ; *British Journal of Psychology*, April 1928.

The interest of the problem to the theorist and, obviously, its vexatiousness to the practical man in a hurry, lie in the nature of the mental and bodily processes by which such transfer is effected. Are these, in any particular person, habits, behaviour-patterns, emotional attitudes, sentiments, ideals, or a uniquely personal blend of them? That an answer to this question is often highly desirable was tragically illustrated when, during the war, men successful in one branch of activity succeeded or dismally failed to "transfer their knowledge and skill to a different industry and to different material." A relatively new and perhaps simplifying factor has recently arisen, as Mr. Arthur Pound has pointed out.<sup>1</sup> The introduction of automatic machinery involving subdivided operations often facilitates such transference. Moreover, the machinery may even be designed with this aim in view, i.e. so that the simple operation may form a unit in the production of different articles. So credit for successful transference may be due less to the transferer than to the machine's

<sup>1</sup> *The Iron Man in Industry* (Boston, 1922).

inventor ; an example of the portentous ' fractional distillation of skill ' of which more will be said in Chapter VI.

Probably a special instance of this problem is raised in the consideration of

(5) *Keeness of perception*. At first sight it might seem that unusual keenness of perception, which generally means exceptionally fine sensory discrimination, and superlative skill, are sure to go together. This is a hypothesis which can and will be experimentally attacked in many investigations. Seashore perhaps led the way in the investigation of musical talent<sup>1</sup> ; his example will be followed in many other directions. But while it seems unlikely that superlative skill will be found linked to sub-normal discrimination, a high correlation between them cannot be *assumed*.

In this connection it should not be forgotten that the correlation between sensory discrimination and general intelligence, though usually positive, is very low.<sup>2</sup>

(6) *Appreciation of the inter-relation of*

<sup>1</sup> *The Psychology of Musical Talent* (Boston, 1919).

<sup>2</sup> *Psychological Tests of Educable Capacity* (London, 1924).

*factory processes.* This asset, though important, might at present be placed rather with problems of intelligence<sup>1</sup> than with those of skill as we have defined them.

*Distributed and Concentrated Attention in  
Skilled Performances*

In learning a complicated and difficult set of actions, one is struck by a difference between two requisites. The first is the ability to perform a temporal series of connected movements, when at any moment attention is concentrated upon the performance of one movement only. The second is the ability to perform several important actions simultaneously, e.g. at the same moment to move the two legs, the two arms, the head, shoulders, trunk, and hips, in a specified way. Conceivably the capacities underlying these two abilities might have little in common, and psychologists have long distinguished, though perhaps too sharply, between distributed and concentrated attention.

<sup>1</sup> C. E. Spearman, *The Nature of Intelligence and the Principles of Cognition* (London).

The native endowments and the acquirements of skilled people probably differ in this respect, a point which may usefully be kept in mind while teaching. As a learner I have often noticed my difficulty in distributing attention simultaneously to different parts of the body, as compared with the relatively greater ease of concentrating attention on one part. And so doing, I have enviously eyed the lucky ones with great ability, in this sphere of activity, to distribute their attention.

It is possible that many experiments upon skill which employ a maze,<sup>1</sup> through which the subject is required to pass a stylus, or even himself, do not test distributed attention. They may examine only the power to link in serial order a number of conditioned responses. Threading a maze, for example, gives little opportunity to the creators in skill. It may even involve skill of a relatively low order. A fuller appreciation of the many excellent

<sup>1</sup> Cf. G. H. Thomson, *op. cit.*, chap. vii. M. Gopalswami, "Economy in Motor Learning," *British Journal of Psychology*, 1924-5, vol. 15, p. 226.

experiments on typewriting<sup>1</sup> would probably result from analytic criticism of this kind.

*What Kinds of Skill does Industry want?*

When we examine the applicability of these considerations to industry it is wise to ask a question. Is skill of the higher type, described and exemplified above—and especially creative or individual skill—possible? Is it necessary, or desirable in this or that particular section of industry?

Without detailed answers to such questions, industrial psychologists will not investigate but grope, and not only they, but economists and others to whom skill and its remuneration are outstanding problems.

Analytical descriptions of the types of skill which are employed in important branches of different industries would be invaluable. Investigations with this aim are in progress in Great Britain under the direction of the Industrial Fatigue Research Board and the National Institute of Industrial Psychology.<sup>2</sup>

<sup>1</sup> W. F. Book, *Learning to Typewrite* (New York, 1925).

<sup>2</sup> Cf. articles by Max Tagg and Winifred Spielman in

*A General Classification of Industrial Skills*

Meanwhile, one may profitably attempt to classify industrial skills, beginning at the lowest type and ending at the highest.

(1) *Responses imperfectly adapted to the situation which evokes them.* This class probably includes a great many forms of domestic service in England. Domestic workers often resist not only new methods, but the introduction of labour-saving apparatus, such as the vacuum cleaner, the electric iron, etc. At such a level is the skill of many labourers and workers in the semi-skilled trades.

This is not written in ignorance of the fact that apparently simple tasks may be placed higher in the scale of skill by a man who knows them well than by the outside observer. Nasmyth,<sup>1</sup> who recognised the demands made upon workmen in moving machinery, says :

the *Journal of the National Institute of Industrial Psychology*, 1923, vol. 1, pp. 277-82, 313-24, 1925, vol. 2, pp. 256-61, 313-23, and its Report No. 1, on "Occupation Analysis," by F. M. Earle, 1924.

<sup>1</sup> In James Nasmyth, *Autobiography*, quoted by Bezanson.

“The village of Worsley, the headquarters of the Bridgewater Canal, supplied us with a valuable set of workmen. They were, in the first place, labourers ; but, like all Lancashire men, they were naturally possessed of a quick aptitude for mechanical occupations connected with machinery.<sup>1</sup> Our chief employment of these so-called labourers was in transporting heavy castings and parts of machinery from one place to another. To do this properly required great care and judgment, in order that the parts might not be disturbed, and that the workmen might proceed towards their completion without any unnecessary delay. None but those who have had practical acquaintance with the importance of having skilled labourers to perform these apparently humble but in reality very important functions, can form an adequate idea of the value of such services.”

(2) *Responses perfectly adapted to the situation, yet exhibiting nothing personal or self-expressive.* Such is the skill of the perfectly drilled private soldier on parade, where the

<sup>1</sup> As a psychologist I venture no comment upon various implications of this interesting assertion.



expression of individuality is obviously not encouraged. If the various routine adjustments in the armies had been motion-studied (a few have), a parallel could be drawn between military skill of this kind and the skill which would result in industry if a stereotyped series of actions, however efficient, were forced upon the worker. The skill would then be like that of a soldier shouldering arms when standing in line. Its advantages and disadvantages are made clear in military organisation.

(3) *Responses of the nature of habit, but less mechanical.* They are adapted, yet very susceptible to modification. Such habits do not appear objectively to the outside observer, to be mechanical, nor subjectively to their performer, to be unconscious. They are seen in sports, when rapid, delicate, complex, and effective adjustment is required in relation to the surface upon which the player is moving, e.g. wet and dry, shale and grass, tennis courts ; heavy and light football pitches ; hard, soft, smooth, and bumpy ice ; and different hardnesses and elevations of snow-slopes.

This adaptation may be effected to conditions both external and internal. A person who is feeling ill may modify his performance in such a way as to throw less strain upon his muscles, yet without decreasing control. A light-weight footballer will behave differently towards a wet slippery ground and one which is hard and dry. A first-class automobile driver's adaptive behaviour in traffic makes the ordinary amateur look like the bundle of habits which some pessimists declare man to be.

(4) *Responses like those in 3, but exhibiting in their totality a pattern characteristic of the individual.* This pattern may be unoriginal or original. A style which appears to the spectator to be characteristic may actually have been imparted by a teacher, though to it the pupil often—perhaps usually—adds some personal features.

Types 3 and 4 shade into each other. In 4 an aspect implicit in 3 is shown with particular emphasis. These two types of skill are probably in the minds of writers who object to the standardisation of industrial tasks.

(5) *Creative skill ; possibly the highest type.*  
In this realm there may be two kinds of creation. One is unconscious, or nearly so, as when a pioneer claims that his work seems to find its way out of him. Another kind may result from deliberate analysis of earlier attempts, which would be satisfactory to most persons ; but are unsatisfactory to the creative genius. Such analysis<sup>1</sup> may involve recall in memory (visual, muscular, and verbal) of various skilled feats, comparison and discrimination between them, selection of their relevant aspects, re-comparison with some aim in view, re-combination, and as a result, an unanalysed—perhaps unanalysable—polish which fuses the movements into a dazzling new unity.

This is inventive creation in skill resulting from analysis. It is seen and will be seen oftener in the world of play and art. It may increase in the world of industry, if industry desires and deserves it.

<sup>1</sup> It may follow the lines of analytic thinking in general. Cf. Pear, *British Journal of Psychology*, 1921, vol. 11, pp. 72-80.

## CHAPTER II

### INTELLIGENCE, INTELLECT, AND SKILL

AMONG the factors helping fitness for work are intelligence, intellect, and skill. That these words will be used in a narrower sense than is customary is inevitable if they are to have any psychological value. Some meanings for these terms, which seem to denote important functions, will therefore be suggested. The labels probably matter less than the entities which are discriminated and described in this chapter.

It is easier to say what intelligence does than what it is. To know more about the use of a thing than about its nature is not uncommon. The more a man knows about physics the less sure he often is about the nature of electricity. Yet not to know what electricity does is to miss much fun in life and even to risk life. And a man who declined to pay his electricity bill on the ground that nobody knows what

electricity is might receive more sympathy from a metaphysician than from the county-court judge.

It seems that what the majority of psychologists nowadays call intelligence is measured by different tests with substantially similar results. Attempting to describe rather than define it, psychologists suggest that intelligence is the capacity of the individual to adapt himself to a new situation. To borrow Dr. Ballard's description,<sup>1</sup> it is more fully manifested in the higher mental processes than in the lower. It is specially employed in situations which present points of novelty, i.e. the solution of problems. It is concerned more with the dissection, planning, and rearrangement of the data of experience than with the mere reception of impressions. All these criteria are helpful if one inquires whether there may be a 'muscular intelligence.'

To hold that intelligence is a capacity is to imply that it is neither an ability nor a skill. One may have capacity for a performance of which one has never even heard. A normal

<sup>1</sup> *The New Examiner*, pp. 116 ff.

baby, while merely babbling, has the capacity to use language. Intelligence is not the ability to learn, though the two are closely related. A learner may supplement low intelligence by the skilful use of various devices and of good tutors. But to choose the devices, or the tutors who supply them, is often a sign of great intelligence, though not necessarily in the learner himself.

### *Intelligence and Habit*

Intelligence must be distinguished from habit, either of the coarser muscles or of the finer ones controlling speech. In the ordinary course of his day, the driver of a motor-car may display little more than habit. Ordinary traffic-situations may evoke easy unreflecting responses. But the expert, nursing his engine, regulating the ignition, adjusting his traffic-behaviour so that he maintains an almost constant, safe speed, is skilful. And if, meeting a new situation, he does so in the best manner, 'dissecting, planning, and rearranging' it, his reaction is intelligent.

*What Intelligence is Not*

By telling us what intelligence is not, by stripping away all the concealing accessories which allow people to sell as intelligence a conglomeration of other qualities, Dr. Ballard has shown us what is left. Let us then see what intelligence is not, offering a few, perhaps superfluous, comments.

It is not knowledge. High intelligence may exist in an entirely uncultured person, and be clogged by special experience. To speak of anyone as unprejudiced by knowledge of the subject is not as satirical as it may seem.

Intelligence is not habit. Many an everyday decision of a business man may appear to us, unpractical onlookers, to be brilliantly intelligent. And possibly, the first time he made it, it was. But when, having made a justified decision, he meets the recurring situation with similar behaviour, he is setting up a habit, which is not in itself intelligent. For towards a new problem, superficially resembling the other, the habit itself may lead to a reluctance to dissect, plan, and rearrange.

Intelligence is not, of course, the ease which comes with practice.

Intelligence is not interest. It is possible in this country to take a very unintelligent interest in one's food or one's games. Some highly intelligent persons who cultivate certain sports for relaxation view with alarm the intellectualisation of these pastimes by others. With Mr. Chesterton they hold that whatever is worth doing at all is worth doing badly. But this is because they have taken good care to bestow their chief interest elsewhere.

Intelligence is certainly not an infinite capacity for taking pains. More often it is directed towards avoiding them.

It is clear that highly intelligent people, as we happen to know them now and here, show some or all of these non-intelligent characteristics. But for this there are several reasons. Intelligence, even at present, not infrequently leads to success, which notoriously succeeds. The intelligent person usually gains knowledge, which, intelligently used, rapidly leads to more. Such knowledge cannot fail to be interesting, and, moreover, is apt to



attract interesting acquaintances. So the intelligent person is usually interested in several ways ; in things and persons for themselves, in persons because of their connection with things, or in things because of their connection with persons.

But high intelligence is often accompanied by a capacity to be *un*interested. Our modern novelists and playwrights do not neglect to provide us with illustrations of this idiosyncrasy of genius, which needs no further elaboration.

Not only is intelligence not habit, but the intelligent man often avoids contracting too many habits. How far the modern teaching, for example of Gurdieff, that one should avoid contracting habits, is based on evidence is a question that can be raised but not solved here.

Intelligence is not capacity for application, but since intelligent behaviour creates interest, the intelligent man applies himself to satisfy interest.

### *What is Intellect ?*

There is certainly less agreement as to the use of the word 'intellect.' Its historical

ancestry is recorded by Professor Spearman.<sup>1</sup> Its history alone, however, does not appear to justify our distinguishing it from intelligence. Yet at present there is a very great difference between the uses of these words. Many persons are highly intelligent in the sense recorded above, who would not dream of claiming or admitting the title of intellectual.

A glance at 'Intelligent, Intellectual' in that delightful book Mr. Fowler's *Modern English Usage* at first makes at least one psychologist's head swim. For the opinion, as there recorded, begins :

"While an intelligent person is merely one who is not stupid or slow-witted, an intellectual person is one in whom the part played by the mind as distinguished from the emotions and perceptions is greater than in the average man."

This paragraph beats me. I feel, however, less at sea with the next :

"An intellectual person who was not intelligent would be, though not impossible, a rarity ; but an intelligent person who is not

<sup>1</sup> Op. cit., pp. 18-20.

intellectual we most of us flatter ourselves that we can find in the looking-glass. *Intelligent* is usually a patronising epithet, while *intellectual* is a respectful one, but seldom untinged by suspicion or dislike."

Perhaps in America, where children are said to know their intelligence-quotients, the epithet has ceased to be patronising. In this country it is not patronising to mention that a man weighs fourteen stone or has obtained a first in 'Greats.' . . . Is it too late to suggest (as Mr. Fowler might say) that while the more international meaning of 'intelligence' is rapidly approaching that described on pp. 51-5, intellect may be reasonably defined as the ability to express oneself in words?

To use 'intelligent' and 'intellectual' in these ways would recognise that many intelligent people seem less intelligent than they are because of their aversion from becoming intellectual. Accordingly they tend to shun fountain-pens, interviewers, lecture-platforms, literary societies, and coffee-parties. Many such persons exist in the worlds of art and music, and, when they can afford it, of science.

Amateur athletes are judged by some to have forfeited their status, and by others not to have done so, when, becoming intellectual about their game, they accept money for it. This points to the existence of the belief that playing a game and intellect have little to do with each other.

Of some games and some players this is self-evident. Newspapers recently assured us that an American boxer's liking for Shakespeare was felt by thousands of muscular men to be in questionable taste.

But many muscular skills differ from other kinds of knowledge (for skill is muscular knowledge) in that they have scarcely any proper language. To describe them, one's vocabulary has to be collected in the grandstand and the study, not on the field of action. Perhaps because so many skilled people are inarticulate and almost mute, one tends to consider them unintellectual. Certainly many skilled persons have characteristically few 'habits in the use of words.'<sup>1</sup> But, that apart, their type of sport may afford few words

<sup>1</sup> The phrase is, I believe, Mr. Bertrand Russell's.

even if, departing from custom, they were reckless enough to search for them. A cricketer very properly replied to his aunt, who inquired why that ball was called a 'yorker,' "What else *could* you call it?"

Skill, then, in some spheres and by some athletes—progress is very ragged—is being rapidly intellectualised. Yet the die-hards may take comfort in the vast tracts of untouched desert, both in their skills and in themselves.

Let us look at ourselves for a moment through the eyes of one who was in but not of our country. Joseph Conrad pictures a man—

"whose clear pale face had under its commonplace refinement that . . . overbearing brutality which is given by the possession of only partly difficult accomplishments ; by excelling in games. . . ." <sup>1</sup>

May it be that such athletes have overcome only the non-intellectual difficulties in their game? To them it is just an occasion for the

<sup>1</sup> *Tales of Unrest ; The Return.*

gleeful exertion of sheer strength, of low cunning, for the permissible indulgence of pugnacity and other simple instincts. One has met these men. The intellectual challenge, the exhilarating possibility that undreamed-of strokes, stances, breaks, and swerves may be invented, are neither accepted nor comprehended. Yet ten years after an innovation has elbowed itself into the game's structure, these men will be sternly teaching it.

If it be true that artists are chiefly interested in concrete events, while philosophical and some literary minds lean more towards the abstract and general, then the world of skill probably contains its artists and philosophers. So the aversion from thinking about games which characterises certain first-class athletes may be partly a positive result of nature and partly a negative result of nurture.

The opinions expressed in this chapter may now be stated in a summary fashion. A skilled person, in work, art, or sport, may or may not be intelligent or intellectual. He may show one, two, or all three of these qualities in a fusion the nature of which characterises

his personality. The thrice-blessed person, an intelligent, skilled intellectual, could direct upon his problems those intelligent powers which Professor Spearman has distinguished. But he would be helped by his intellect, i.e. by his power to recall, select, and employ words, in formulating the problems, and in expressing the general principles which he discovered or used in solving them. When the knowledge which he seeks is available in the words of others, his intelligence and intellect will enable him more easily to understand and, if necessary, to paraphrase them. If he can visualise pictures, draw them (these two gifts not being necessarily interdependent), and abstract their salient features into diagrams, he will more easily communicate his meaning to certain readers, who in their turn may criticise, destructively and constructively. In this way he may bring the general principles derived from his special sphere alongside those obtained from other realms to which he may not have access. From such confrontations and intelligent comparisons he may enunciate new principles. These, by means

of his skill, he can test in his own world of experience.

This conclusion may be illustrated by distinguishing three kinds of non-intellectual skilled person.

First, the unspoilt child of Nature, developing sometimes into the muscular Philistine to whom these pages have, perhaps unnecessarily, introduced the reader. Such a skilled person is apt to talk and write, or have articles written for him, about the 'instinct' for cricket, tennis, and motor-driving. Unintellectual he certainly is, must he therefore be unintelligent? Obviously not, for his gifted neuro-muscular system may be one mechanism of intelligence, the capacity of adaptation to a new situation. He lives in deeds, not words. And by so much the less is he pervious to words suggesting that his deeds might be improved. . .

Next the rigidly obedient interpretative artist in skill. He is quick to learn, possessing high intelligence and quick sympathy with, even passionate loyalty towards, his teachers. To actualise, as delicately and as completely



as possible, the postures, the strokes, or the notes taught him by someone else is a delight and a labour of love. To alter the instructions, to improvise, to add something of his own, would seem to him sacrilege. He believes in 'the' way to hold a bat or a racquet, to take a snow-slope, to sit a horse, to play a piano note, even sometimes to make a joke. Where his kind succumb to the temptation to express in their skill something of themselves, they are on the way, though usually not far, towards becoming members of the third class; the creative artist. And about him so little is known that it is safer to say nothing here.

## CHAPTER III

### MOTIVES IN WORK AND PLAY

THE reasons for writing of work and play in the same chapter, if not at present obvious, will appear later. That some individuals and some classes of society work at play and play at work is a well-worn platitude which happens to be true. Now, usually we get satisfaction in our play. If not, we abandon it, or continue it in a work-spirit. It therefore seems reasonable to infer that an attempted analysis of satisfaction in some classes of play may illuminate certain problems of work.

No psychological subtlety is needed to grasp the distinction between the paid work which a man likes so much that were he to become rich he would continue to do, and that kind which, on retiring, he tries, both consciously and unconsciously, to forget.

In the first kind of work the activity itself is pleasant. So this work is often indistin-

guishable from play. Whether in an ideal world we should all work in the play-spirit is a question more interesting to-day than ever before. For while to some the answer is obviously 'yes,' to others the question is a quaint relic of medieval (for this is how many of them would spell it) thinking. These latter would maintain that work is something of which man should get as little as possible. It is not inherently, but only occasionally and accidentally, ennobling. It should be shortened, simplified, reduced, and, where possible, eliminated, so that man can spend his longer leisure doing what he likes in the way he likes. Those things which he likes are play, other kinds of work, and watching others play or work.

This thought-provoking subject, the different concepts of the function of work, will be discussed in Chapter VI.

Yet even the sternest preacher of the necessity of work would allow that one may sometimes like it, because of its pleasant activities. So we may inquire into the causes of pleasure in activities undertaken for their own sake.

*Motives in acquiring Skill*

Both the work and play activities of all who have passed childhood<sup>1</sup> demand the acquirement, before or during the play, of appropriate skill. Nevertheless, the motives which lead one to acquire skill have only recently been touched upon in psychological writings.<sup>2</sup>

*The Nature of Motives*

Motives are forces impelling us to action which issue primarily from the dispositions of our minds and bodies, and only secondarily from the features of the external situation towards which the action is directed. Motives are not only driving forces, but they help to

<sup>1</sup> The fascinating subject of children's play forms no part of the present book.

<sup>2</sup> F. A. C. Perrin, "The Experimental Study of Motor Ability," *Journal of Experimental Psychology*, 1921, p. 56 ; F. C. Bartlett, *Psychology and the Soldier* (Cambridge, 1928) ; Isabel Burnett and T. H. Pear, "Motives in Acquiring Skill," *British Journal of Psychology*, 1925, xvi, 77-85 (this article forms the basis of pp. 66-80 of the present book) ; T. H. Pear, *Proceedings of Manchester Literary and Philosophical Society*, April 26, 1927 ; J. N. Langdon and Edna M. Yates, *British Journal of Psychology*, April 1928.

provide imagined goals which the individual strives imaginatively to transform into a 'real' goal.<sup>1</sup>

A reason for desiring to secure adequate motivation in the acquisition of skilled acts is that while learning any complicated skill prolonged effort is essential. The 'born' cricketer has yet to be born.

Experiment supports this without exception. Bryan and Harter, who studied the learning of telegraphic reception and transmission, insist that "it is the intense effort that educates."<sup>2</sup> Johnson ascribes 'plateaus' in the practice curve to pauses in effort.<sup>3</sup> W. F. Book, who studied typewriting intensively, says: "Less effort was actually put into the work at all those stages where little or no improvement was made."<sup>4</sup> Prolonged effort

<sup>1</sup> Cf. p. 120 on the rôle of fantasy.

<sup>2</sup> "Studies in the Physiology and Psychology of the Telegraphic Language," *Psychological Review*, 1897, iv, 27-53.

<sup>3</sup> "Experiments in Motor Education," *Yale Psychological Studies*, 1902, x, 81-92.

<sup>4</sup> *The Psychology of Skill*, University of Montana Publications in Psychology, 1908.

is unthinkable without prolonged attention. These two are therefore indispensable to the learning of any high-grade skill. Now, both may arise and continue either as a result of explicit volition, or may be non-voluntary.

In play, especially in games which exercise the muscles, joints, and skin surfaces, the motive for continuing is the pleasure the individual enjoys in the movements he performs. For in many games, and even in some forms of work, muscular skill may express itself through patterns of bodily structure and bodily control closely related to instinctive patterns. The straightforward, almost childish joy that some adults find in games seems thus comprehensible. For such players, games are activities motivated by instinct, and require for their continuance neither voluntary attention nor acts of will to prolong the effort. The predominant motive force is their interest in the pleasure which they derive from their bodily sensations. This interest is an important source of pleasure in certain skills necessitating unusual bodily movements and postures.

It seems justifiable to call this pleasure *muscular sensuousness*. Its enjoyment is certainly, in the Miltonian phrase, "simple, sensuous, and passionate." And the muscular sense, like all the others, provides occasions for epicurean enjoyment. Privileged appreciators, not merely of muscular sensations, but of their simple and complex groupings, their melodies and harmonies—perhaps, too, of their contrapuntal relations—are to be found among dancers, figure-skaters, ski-ers, swimmers, gymnasts, and eurhythmists. That such epicures exist in the world of work is highly probable.

However since, especially in modern times, the nature of play has been complicated by social prestige, by considerations of health, and even by the prospect of wage-earning, the motives in seeking it have become correspondingly complicated. For many professional athletes, indeed, the motives must be so intermingled that work and play merge into each other. This does not, of course, imply that an amateur on becoming a professional ceases to enjoy muscular sensations and their groupings, but only that in the sophisticated adult mind

the single motive of muscular enjoyment cannot often remain uncomplicated by other and more social motives. Yet there must be professional athletes and artists who are peculiarly fortunate in that for them work and play are the same thing. For the activity which they have made their career gives pleasure due to the satisfaction of instinctive tendencies, and this pleasure is the essence of play.

*Motives in acquiring Skill in Play*

Miss Isabel Burnett (Mrs. F. Crawshaw) and I have attempted to summarise the motive forces in playing outdoor games.

From our own experience, that of some friends, and general observation we arrived at the following list of incentives to acquire skill in play :

(1) Muscular sensuousness and epicurean enjoyment.

(2) Delight in experiencing power over oneself, over other people, over animals and inanimate things.

(3) Frankly social considerations, desire for fun, for friendship, for approbation, for self-



assertion and self-display, for association with famous athletes, and the varied results of such companionship. In connection with the motive of seeking fun, the laughter, entirely unconnected with humour, which proclaims successful achievement, both in the baby and in the grown man, is intensely interesting.

(4) The impulse towards 'sublimation.' This word is nowadays used in two senses. By Freud and his strict followers, it denotes the diversion towards non-sexual aims of an impulse, sexual in nature. The word has also come to mean, though not with Freudian approval, the diversion of any primitive impulse, e.g. sex, pugnacity, self-assertion, acquisitiveness, from a natural goal, which is disapproved, to one which is encouraged, or at least winked at, by society. The term thus deserts the positive study of psychology for ethics, religion, even fashion. Yet this wider, looser concept is generally used when people speak of sport as a sublimation.

That English society is not unanimous in its approval of certain outlets or of the names applied to them is illustrated each summer by

the opinions expressed on stag-hunting. A more pleasing set of sublimations, immune from criticism, can be seen on the football field, in the Boy Scout and Girl Guide camps, and in our hospitals.

One should not infer that a series of actions resulting in sublimation is often begun in full awareness of its ultimate function. But people know more about their minds and bodies than they did fifty years ago, so probably many sublimations, in the world of sport and elsewhere, are not entirely blind.

(5) The plunge into play-activity may be a repression, a process which, beginning its work upon insistent desires, fears, or worries, ends by rendering them incapable of access to consciousness. This repression in its extreme form can be distinguished from, but usually shades off into, a process often loosely termed repression, i.e. :

(6) The deliberate distraction of the mind<sup>1</sup> by intense application to the learning of difficult skills or by the practice of dangerous

<sup>1</sup> Cf. T. H. Pear, *Remembering and Forgetting* (London), pp. 144-9.

sports in order to allow fewer opportunities for unwanted themes to push themselves into consciousness. This is 'side-tracking' of a subject rather than repression; the process recommended by many doctors to patients who wish to expel worry from their minds. In this connection it is well known.

(7) A retreat from reality.<sup>1</sup> This use of games appears in a simple form when a person changes the objects of his interest by deserting the harassing responsibilities, which are his realities, for a few hours' play which is not so regarded.

The degree of reality which attaches to one's work and play is a matter of interest to many students other than the psychologist; to the discerning medical man,<sup>2</sup> and to the metaphysician. It is also of great importance in the present connection. For nowadays many people find relief in highly skilled games because the social and physical settings in which they are practised substitute a semi-serious quasi-reality for the actual reality of

<sup>1</sup> Cf. pp. 100 ff. of the present book.

<sup>2</sup> Cf. Pierre Janet, *Mental Healing* (London).

financial complexities, family worries, etc. And the importance of this play-world is that while its demands are being met they are cogently real. Any mistakes made by the player will have to be paid for heavily, and, as in football and some winter-sports, may even involve physical danger so great that he dare not consciously slacken his attention. Such a play-world is very near to a reality, for though the player could abandon it if he liked, he could not, without incurring unpopularity, retire at any moment he pleased.

One might even speculate whether amongst the social class known as the 'idle rich,' joy in skilled games may be due to the fact that these games often form their most real world. In playing such games well, the players temporarily leave a world which, though sometimes real, is sometimes oppressive in its unreality, for one where values are really coercive, rules are kept, and penalties are not evaded. The present writer has little knowledge of this class, and what he does possess may have been gained from biased novels. But people of an intermediate social class,

rich but not quite idle, are often condemned by circumstances, which they consider almost real, to fritter away a good deal of their lives. Athletic skill affords them a world in which they can consciously and voluntarily meet serious reality.

(8) The courting of danger. Occasionally one of the chief motives in the acquisition of certain types of skill seems to be the deliberate courting of danger. This may actually be true where the skill is used consciously or unconsciously as a method of repression, distraction, or side-tracking. But may it not be rather that the average person engaged in such sports is courting bodily thrills, and that those situations which quickly and certainly give him such thrills, and yet are socially permissible, are usually dangerous?

The suggestion has been made that the conception of 'distancing,'<sup>1</sup> borrowed from the sphere of æsthetics, is applicable here. We may enjoy the thrill of danger when it is

<sup>1</sup> E. Bullough, "Psychical Distance as a Factor in Art and an Æsthetic Principle," *British Journal of Psychology*, 1912, v, 87-118.

psychically distanced, but not when, as an actual fact, it is devoid of an artistic setting. For a similar reason, reminiscences of dangerous incidents may often be pleasurable.

May one go further, and borrow from æsthetics the notion of 'catharsis'; that just as the pity and terror experienced when watching a tragic representation afford a cleansing and spiritualisation of the passions, so do the thrills of fear in dangerous games free us from lesser physical timidities?

### *Motives in acquiring Skill in Work*

The motives underlying the acquisition of skill in work are often more complex than those discussed above. In work, a higher degree of voluntary attention is generally needed, involving greater restraint of the organism and more rapid mental fatigue.<sup>1</sup> Whereas play follows the natural instinctive bent of the individual, work generally involves

<sup>1</sup> An unusual and most suggestive account of fatigue is given by Mr. F. C. Bartlett in *Psychology and the Soldier* (Cambridge, 1927).

the inhibition of natural tendencies. Even play, if persisted in when the individual has become fatigued or indifferent, seems to assume the subjective character of work.

The most obvious and frequent motive of work is wage-earning, in order to provide for oneself or for dependents. This seems to provide a direct appeal to the self-preservative and the parental instincts. Yet, inasmuch as the individual's interest is not necessarily in the performance of the activity but in the result, his enjoyment is relatively remote from his performance. He must exercise voluntary attention and continue to perform a series of acts which may have no pleasurable feeling-tone. By acts of will he must whip up the organism to prolonged effort. Naturally, many measures have been taken to overcome the mental stress that results where an individual's occupation does not in itself give pleasure. Such are the frequent payment of wages, the stimulation of rivalry among the workers, and the institution of overseers and instructors. The part played by the instructor is worth detailed discussion.

*The Function of the Teacher*

In *Skill in Work and Play*<sup>1</sup> attention was drawn to the extreme importance of the teacher's influence in the learning of any *difficult* skill. It is not an exaggeration to assert that strikingly good performances involving complex skill have usually been learned from a teacher. One ought, therefore, to distinguish between the sources of the motives in various forms of learning. They might be classified as follows :

- (a) Learning something by oneself.
- (b) Being taught, well, badly, or indifferently.
- (c) Doing some skilled actions well and from them independently evolving further skill.
- (d) Doing them well, understanding them, intelligently and intellectually, being able to expound them, and being accredited by society for all these abilities.

It is certain that one usually gets on faster with a teacher than without one. A good case might even be made out for the belief that,

<sup>1</sup> Pp. 74-80.



if an individual has goodwill and a desire to learn, he or she would do better even with a relatively poor teacher than without one, provided, of course, that the teacher taught nothing wrong. For teachers have other, more personal, functions than merely imparting information, which a book can often do as well or even better, if it adequately describes and illustrates the actions to be performed. (It is notorious that many books do not.)

When undertaking to learn something from an instructor, the individual usually assents from the very beginning to the whole process of learning, accepts the self-negatory attitude of pupil to teacher, and tends to obey. Long voluntary effort is of course necessary. But if during the learning period there arises a clear choice between making or not making an effort, the original inner acceptance of the working and learning situations, and the habit of obedience, will weight the choice on the side of effort. In the most favourable cases the choice will become automatic. This automatic choice obviously economises volition and minimises mental fatigue.

In the learner with no teacher, inner assent to the working and learning situation does occur. But it is not reinforced by the personal and often affective relation of pupil to teacher. Nor is it strengthened by any tendency to obey, except that of obedience to the individual's own commands. But obedience to self-imposed commands involves a special self-imposed control. Hence the necessity for acts of will, for inhibition of other natural tendencies, and consequently the increase in extra mental fatigue.

In studying skill, it is easy to see the importance of the teacher's influence long after the skill and knowledge have been obtained. Sometimes it may have done as much harm as good. "When I was at —, forty years ago, under —, he always taught us" is a phrase we often hear. As applied to morals, some of us welcome it; but if it refers to skill, in which there has been a spectacular improvement of late, we usually know what to expect.

It might be noted that while for many people play is a retreat from reality; for others,

some kinds of work are also a retreat from their reality, which is work of another type. This consideration is vitally important in the case of persons who work very hard both in the factory or shop, and at home. With a view to making it clear to his workmen that their domestic life must not be their chief reality, one employer at least has drawn up requirements concerning their private life. They discourage the workmen from giving too much help in the home, for this requires energy which is paid for by the employer.

The motives which make a person undertake work are, of course, not always those which make him continue, and eventually succeed at it. But to pursue this line of thought would go beyond the scope of this book. Recent writings on this subject are Mr. Whiting Williams's *Mainsprings of Men*, Mr. Ordway Tead's *Instincts in Industry*, Mr. Arthur Pound's *The Iron Man in Industry*,<sup>1</sup> Frl. I. M. Witte's *Taylor-Gilbreth-Ford*,<sup>2</sup> and Dr. R. Baerwald's *Arbeitsfreude*.<sup>3</sup>

<sup>1</sup> Boston, 1922.

<sup>2</sup> Berlin, 1924.

<sup>3</sup> Leipzig, 1921.

## CHAPTER IV

LAZINESS, WITH SOME REMARKS ON STUPIDITY

CARELESSNESS, clumsiness, laziness, all these words present themselves occasionally at the tip of even the fairest and most discreet of tongues. Yet their very readiness should make us pause. A word which can be applied to many different things is usually more valuable to the politician than the scientist. And it may well be remembered that we seldom apply these three epithets to people whom we really like. Careless, clumsy, lazy, for Jones whom we don't know well and don't want to know better ; but Smith—lovable fellow—is scarcely careless, rather dreamy, absent-minded, not quite clumsy, but perhaps a little incoordinated, coltish, or gauche, and, of course, a rough diamond. Hardly lazy, but vividly awake to the pleasures of life, epicurean, a child of Nature.

That there are persons who deserve to be

called careless and clumsy is clear. Unfortunately several different virtues and defects lie hidden under these blanket-terms. And this is no less true of laziness.

### *Some Causes of Laziness*

It seems reasonable to look first for causes of laziness among physiological factors. I suppose 'bone-lazy' means lazy all through one's frame right down to the bone, and the inventor of that epithet certainly believed in this source of laziness. It would be interesting to consider the meaning of 'slothful' and 'sluggish.' The animals to which we are indebted for these names have very definite characteristics of structure and function. That certain types of body predispose their possessors towards laziness seems probable. Kretschmer, in *Physique and Character*,<sup>1</sup> has based much—perhaps too much—upon these types. Apart from this chronic cause or system of causes there are acute ones too. Different glands in the body exercise their specific effects at different times, as is well known in medicine.

<sup>1</sup> London, 1925.

There is an obvious relationship between laziness and fatiguability. Like most 'obvious' things, it repays psychological examination. For if a man is genuinely fatigued, i.e. if his body and especially his muscles and nervous system, have sustained definite wear and tear leading to marked chemical changes, like those described by Professor A. V. Hill in his *Human Machines*, he would not be called lazy. And if we resolve to mean by 'weariness' the awareness of such actual, objective fatigue, a weary person also would not be lazy. But, as experiment has shown, everyday fatigue is frequently directed towards a special set of circumstances. And this complicates many fatigue problems.<sup>1</sup>

'Lazy' is a common epithet for the neurasthenic. Such a patient's fatigue (or boredom) is often very specific indeed. A short solitary walk in the country may cause extreme fatigue in a person who may dance nearly all night quite normally. It should not be forgotten that there is more than one

<sup>1</sup> Cf. C. S. Myers, *Textbook of Experimental Psychology* (Cambridge, 1911), chap. xiv.

meaning to the term 'neurasthenia.' Some physicians include under it many conditions which others would exclude, reserving it for a complex of symptoms concerning the causation of which they have very definite views.<sup>1</sup>

How far, however, even in a person possessing a body which seems to typify and symbolise laziness are we justified in assuming laziness in general? Such individuals are often reputed to be far from indifferent to the calls of appetite. Perhaps it may be voluntary physical exertion which they avoid, while not being averse to stimulation of the involuntary muscular system.

Laziness or its opposite may be the outcome of a bodily make-up which characterises certain races. Those who employ workmen of different nationalities have views upon this matter, which would be worth collection and comparison. The suitability of different races for different types of labour in ocean liners and

<sup>1</sup> Cf. H. Yellowlees, *Manual of Psychotherapy* (London, 1923), pp. 161 ff.; W. Eliasberg, *Grundriss einer allgemeinen Arbeitspathologie*, Heft 28 of *Schriften zur Psychologie der Berufseignung und des Wirtschaftslebens* (Leipzig, 1924) (with bibliography).

cargo-ships is nowadays taken for granted in many quarters.

These remarks apply to ordinary healthy human bodies. Into the pathological organic causes of laziness we cannot enter here. But one might mention the effects, positive and negative, upon muscular and mental activity of thyroid disease, phthisis, sleepy sickness. Many *mental* disorders are correlated with definite pathological conditions of the body, though in our own country there is little need to emphasise this. The danger is rather that it will be assumed when it is unproved. While everyone agrees that mania and melancholia have a definite pathological bodily basis, it is less often realised that sane persons may have experiences which, if intensified, would be labelled by these names.

Here, however, one can merely point to interesting, exciting—occasionally baffling and bewildering—writings on the bodily factors underlying temperament in health and disease. Cannon,<sup>1</sup> Crile, Kempf, Kretschmer, Carlson,

<sup>1</sup> *Bodily Changes in Pain, Hunger, Fear, and Rage* (New York, 1922).



and Watson<sup>1</sup> deal with this matter in their several characteristic ways.<sup>2</sup> Whatever credence we attach to their theories—and it seems difficult even for the expert to separate the wheat from the chaff—they all attempt to deal with bodily factors which grossly affect the mind, and are therefore of vast importance in our present problem.

And so, sticking—or returning—to our last, we will consider factors in laziness equally important though less often mentioned—those which are definitely mental.

### *Laziness due to Mental Factors*

(a) *The instincts.*—A person may be described by others as lazy towards work which does not appeal to one or more of his instincts. To people whose instincts urge them simply and directly to such work the real or imagined presence of the lazy person is often a source of

<sup>1</sup> *Psychology from the Standpoint of a Behaviorist* (Philadelphia, 1919).

<sup>2</sup> For an elementary summary of this subject see W. S. Hunter, *Introduction to General Psychology* (Chicago, 1924) ; for a more advanced account, J. Rikimaru, "Endocrine Activities," *Psychological Bulletin*, vol. 22, April 1925.

annoyance. Now, the number and the names of the fundamental instincts, even their very existence, are matters about which one hears great argument.<sup>1</sup> But That Same Door of entrance and exit for many is the belief that—labels apart—there are inborn driving forces which tend to make the average man preserve himself, his race, and his own social group.

That these three classes of instinct should help or conflict with each other, that in any one person at any time an instinct might be weak, almost to vanishing-point, seems not only credible but probable.

Laziness of this first type ceases when the person finds himself in a situation which appeals directly and intensely to some powerful instinct. A lazy person of this kind may become industrious on joining the army or navy, or on emigrating to a more primitive country, in which punishments for non-adaptation were severer and less uncertain.

In such an environment, too, many situa-

<sup>1</sup> Cf. F. H. Allport, *Social Psychology* (Boston, 1924), pp. 42-83. R. H. Thouless, *Social Psychology* (London, 1925), pp. 66-76.

tions would offer the person opportunities for sublimation of the instincts. And books could be written about the fortunate ones who have escaped a life of laziness because through their work they obtained congenial—and often unconscious—sublimation.<sup>1</sup>

(b) *Laziness due to general innate tendencies.*—Any method of expounding this subject will depend partly upon our view concerning the nature and number of the human instincts. Yet one must acknowledge the importance, in the present connection, of those instincts, pseudo-instincts, or general innate tendencies known as *suggestion*, *sympathy*, and *imitation*.<sup>2</sup>

The importance, both in work and sport, of the example or pace-maker is well known. But, quite apart from such striking instances of imitation, many persons, in almost everything they do, tend more or less unconsciously to copy someone whom they consider superior, in this particular respect, to themselves. And

not a few descriptions of industry in individuals may be qualified by the implication that they would have been lazier than they are, were it not that when young, an attractive person lured them into good ways.

All this is closely bound up with a much more complex possibility, that the sympathy between the person copied and the copier may result from *transference*, to use the psychoanalyst's word. To this question we shall return later.

(c) *Laziness due to lack of sentiments.*—It would lead the student of psychology into too lengthy and familiar paths if the relation of the sentiments to this subject were to be discussed in detail. He who has not realised that most men work happily or unhappily for reasons of sentiment—that the issues at the bottom of the recent British coal dispute, for example, are grounded in differences of sentiments—has not got far in psychological analysis. But it is important at least to discuss the relation of the sentiments to the instincts.

The affective side of instinctive behaviour can be characterised as emotion. In simpler

language, an emotion is what instinctive behaviour feels like to the behaver. Now, there seems little reason to suppose that the human instincts (types of instinctive behaviour) and their accompanying emotions (types of affective experience of this behaviour) differ much in the human race, except in their relative intensity. But the difference in *sentiments* is notoriously great. An hour's journey from Dover to Calais will prove this, or a short walk from one end of Fifth Avenue to the other. Even in the same family the difference may be acutely marked—as between the sentiments of leaders of political thought and those of their children.

Professor McDougall has expounded with inimitable clarity his view of a sentiment as an organised system of emotional dispositions grouped about the idea of an object, and the reader may be referred to it.<sup>1</sup> It accounts for many important aspects of the sentiments, such as their great qualitative and quantitative differences in different persons, or in the same person at different ages, their high degree of

<sup>1</sup> *Op. cit.*, pp. 122, 125.

integration or organisation, the fact that they are more commonly organised about limited concrete objects (one's home, one's wife, one's possessions) than about large classes of such objects, their relative permanence, and their potency even in the absence of the object which originally aroused them. Laziness is often due to the fact that the work offers no appeal to a strong sentiment. A man may toil at work which he dislikes in order to get married or to support a family ; to the confirmed bachelor such a sentiment is non-existent, though he may stick to equally unattractive work for the sake of power or fame. The interesting fact that many persons cease work when they have earned what they consider to be enough money for the week, or when any extra money would render them liable to income-tax, is an example of the working of this principle. They do not possess sentiments tending to make them strive to increase their purchasing power.

Often it is not easy to distinguish types of work which appeal more particularly to the instincts and the sentiments respectively. But since the sentiments are emotional dispositions

which are permanent or semi-permanent, while the instincts themselves are merely temporary, important grounds of distinction exist. In the War or the General Strike, for example, a man might do an action at the behest of a transient instinct which would have been inhibited or controlled if a sentiment had guided it. A striking example of the influence of a sentiment upon work was the contrast between the keenness of many persons engaged in military service or war-work immediately before and after the Armistice. That this can be easily understood does not detract from its significance.

In many persons, one of the most important sentiments inspiring work with continued effort is termed by Professor W. McDougall the self-regarding sentiment.<sup>1</sup> It is built around not only a man's 'empirical self' but his possessions, his work, his fame, and persons whom he identifies with himself. And thus if a loved object is lost, there ensues a sudden depreciation of values and of positive self-feeling. The loss of the loved object, if Freud be right, is one of

<sup>1</sup> *Op. cit.* Cf. Freud's "Super-ego," *The Ego and the Id* (London).

the factors in melancholia. Moreover, in some cases the desire for self-punishment, through lack of success, may also operate.

(d) *Laziness because the work stirs up complexes, the factors in which may be conscious or unconscious.*—For many psychologists the difference between a sentiment and a ‘complex’ lies entirely in the circumstances that in the formation of the latter, repression has rendered many of the driving forces unconscious. I cannot find this distinction completely satisfactory, for reasons given elsewhere.<sup>1</sup> But in the present connection the distinction may be practically useful. The influence of a ‘complex’ or an ‘untidy sentiment’ often produces a lukewarm attitude towards work. The nature and force of this complex may be known to the worker, or may surprise him, if, as a result of better self-knowledge, he becomes aware of it.<sup>2</sup>

<sup>1</sup> T. H. Pear, “The Relations of Complex and Sentiment,” *British Journal of Psychology*, 1922, xiii, pp. 130–40; “The Nature of Sentiments and Complexes,” *Holborn Review*, January 1923, pp. 73–84.

<sup>2</sup> For an example given in detail see the first article quoted above, pp. 132–3.



Unorganised sentiments or 'complexes' probably actuate the minds of a number of persons who, generally benevolent, are lukewarm for example towards providing pleasures for persons in prison. Often they have no decided views on the matter, but rather a tendency not to think about it when it is brought to mind. Probably this is a complex involving considerable repression.

The tepidity may be noticed when, on being invited to take part in an enterprise, one mistrusts the qualifications of one's superiors or colleagues. If the matter has been thought out, and one judges explicitly that time and energy would be wasted in co-operating with such people, the lukewarm attitude is probably due to an organisation of sentiments. But usually, especially in the easy-going person, the attitude results from factors some only of which are conscious. Repression, or laziness, may prevent the others from becoming conscious. And so it may be—though to develop this would lead us away into deeper matters—that some kinds of laziness result from, or are a form of, repression. The employer who does not

inquire into the adequacy of his workers' living conditions, the country which is content to live in ignorance of the difficulties of its subject states, the farmer who does not keep accounts—all their neglect is laziness of a certain type. Moreover, it may be motivated by a dim desire not to want to know what it would discover if it searched.

The continuance of laziness may sometimes be due to its producing, indirectly, positive satisfaction, partly conscious, partly unconscious. As examples may be cited persons who enjoy living in a mess and therefore are too 'lazy' to tidy, or who, liking to be late, either as a manifestation of superiority or of defiance of authority, are therefore too 'lazy' to set off in time for appointments. But to be just, even to the lazy ones, we must not class them with ambitious people who realise that to be late and to murmur an apology judiciously implying the importance of their work is an effective advertisement. Nor with those who, cultivating a reputation of 'laziness,' are never expected to serve on committees, and thus get time for more

pleasant and original—sometimes even more useful—activities.

(e) *Industriousness and 'transference.'*<sup>1</sup>—I can here sketch only briefly an important problem, seldom raised in discussions of work and play. What are the nature and sources of those factors which cause a person to choose, and having chosen, to persevere with, or abandon, a game or sport, a job, occupation, or vocation?

It should be unnecessary to state at length that many who adopt a job or vocation exercise no real choice, or choose between very few alternatives. The nearness of the factory, the circumstance that friends work in it, the father's trade, any or all of these may determine a decision which has little reference to the worker's fitness. But where there is real choice, as often occurs with play, the forces behind it repay investigation.

To attempt any new task often requires that one should face consciously the prospect of failure; possibly complete and final, certainly

<sup>1</sup> Cf. A. Ferenczi, *Papers on Psychoanalysis* (London). H. Yellowlees, *Textbook of Psychotherapy* (London, 1923), pp. 106 f.

partial or temporary. Many persons are unlikely to seek such an unpleasant experience unless stimulated by encouragement and example. Now it is just in such influences as encouragement or example that subtle factors of personal relationship, fully appreciable only through some knowledge of the unconscious, play a great part. In selecting the new activity, one may be led more or less consciously by the desire to please, to be more like or to be brought closer—literally, metaphorically, or both—to a possessor of this acquirement. And towards him or her, often a teacher or famous exponent of the activity, one assumes an attitude which would remind any but the most resistive critics of psychoanalysis of that of a child towards its parents. The psychoanalysts assert that this resemblance is more than superficial. Our hero or heroine for the time is, they say, a father—or mother—surrogate. In the course of normal mental development many childish emotional attitudes are transferred to persons other than the parents, who originally evoked them. This is no news to many school teachers, priests, and doctors,

though to some of them a detailed theoretical interpretation of transference would come as a startling revelation.

The importance of transference appears indubitably when, for any reason, it ceases or suddenly diminishes in intensity. If the 'transferee' be removed either geographically or psychologically, as by a quarrel or the oncome of indifference, the work which he or she inspired may lose its zest. The reason may be clear to consciousness :

Let the children beg, if they want for bread,  
My Emperor . . . is taken !

But matters are not always so simple. Students in their second year at a university have been known to discover that their special subject of study, which at school was thrillingly all-important, now seems futile, empty, or sordid. Yet it presents no greater difficulties ; it is taught with no less efficiency or enthusiasm ; progress in it, at least as indicated by examination results, seems satisfactory. The simple and obvious sources of explanation suffice for some of these cases, yet fail for others. For some of these latter the most satisfactory

explanation seems to be that the early enthusiasm for the subject was caused by a 'transference' in relation to its teacher.

The theory might also explain why a second- or third-year student may discover that his *forte* is a subject which, though taught well, attracted him little at school. It may have been expounded there by a teacher to whom he felt antipathy, which in turn spread to the subject.

This may be effective, both positively and negatively. A pupil will work hard for a sympathetic teacher, but may refuse, out of defiance, to work for an unsympathetic one, even in a subject which interests him.

(f) *Laziness as a retreat from, or a negation of, reality.*—The discussion on pp. 66 ff. of the nature and effect of motives in acquiring skill suggests that laziness (like sleep) is occasionally the obvious and natural response to external happenings which have lost or lack reality.<sup>1</sup> It is just here that any writer who

<sup>1</sup> I realise that if the editor of a comic newspaper should see this, it risks being pilloried as a typically academic discovery. Nor do I forget Mr. A. P. Herbert's Tchekovian

proposes seriously to consider this type of laziness is likely to be accused of criminal levity. For no two persons take quite the same view of reality and non-reality. Even Professor Pierre Janet's 'hierarchy of efficient action' would scarcely receive the assent of everyone. And exactly how we can keep clear of metaphysics at this point it is difficult to see. A serious acquaintance of mine when not playing lawn-tennis or bridge is reading books upon them. He probably considers my attitude towards both pursuits flippant in the extreme. But perhaps a moment's self-observation is permissible. Numerous devices for wasting time, practised by leisured society, attract me with at least normal intensity. Yet towards card-playing, which occupies many hours in the life of myriads of persons, I never feel otherwise than lazy. Whether the restless activity of psychologists has yet made a job-

goal-keeper in *Riverside Nights*, who, while the ball was penetrating his defence for the twentieth time, suddenly experienced the utter unreality of it all, and went home. The problem, of course, is why a goal-keeper should *ever* feel the reality of his job.

analysis of bridge-playing, cataloguing the mental qualities which are requisite, I do not know. But I happen to possess a well-developed visual memory, in constant use ; I can lecture without notes and am even capable of the ' sub-vocal muttering ' which some people think to be thinking. So unless bridge demands special forms or combinations of memory-power, my memory-qualifications do not seem to be lacking.

The most probable explanation is that bridge involves a physical and social setting unattractive to me. I never feel " life is real and life is earnest " so vividly as when I see people playing cards. The sight stirs in me no ambitions, social, intellectual, or financial. And, unlike many unmusical persons, I take no pride in my disability ; this last trait, I imagine, being a good sign of laziness. Reasons ? Though there may be deep-lying ones, almost certainly some causes are personal influences, and the lack of them. None of my early heroes played cards ; and, perhaps more important, none of them ever told me not to. Towards bridge I always feel as I feel occasionally towards other



pastimes which temporarily lose their zest. But they recover it, while bridge never had it to lose.

What reasons can be offered, or causes sought, for a person's temporary loss of zest for a type of work or play which usually evokes super-normal keenness in him? Bodily fatigue is one. But the performances of rowers, footballers, and dancers may be seriously impaired by fatigue while their task may seem even more real and stimulating than ever. They are fatigued, but not weary. Temporary apathy and 'staleness,' as every trainer knows, offer problems in sciences other than physiology.

It might be added that laziness is often a form of introversion<sup>1</sup> in which the activity which is avoided in fact is vividly enjoyed in fantasy. "I never feel so sociable as when I am alone," said a philosophical person. Novels about men and women who rapidly make important decisions and light-heartedly face their consequences are popular with certain types of introvert, while books and films depicting romantic deeds which are impossible

<sup>1</sup> Cf. C. G. Jung, *Psychological Types* (London, 1923).

to, or avoided by, the avid readers or spectators are too popular to need further mention.

*Common Factors in Laziness and Stupidity*

Before leaving this painful subject, it would be fitting to mention another allied weakness, stupidity. Professor F. H. Allport<sup>1</sup> records that from the many students who have offered excuses for failure he has only once heard the frank acknowledgment, "I guess I'm too thick." Yet most honest persons know that they are occasionally afflicted by genuine stupidity.

It would be charitable—and charity begins at home—to distinguish between two kinds of stupidity. I will provisionally term them cognitive and affective stupidity.

A person is cognitively stupid when, given data, he cannot see the relations between them ; in popular and grossly misleading language "cannot put two and two together." The relativity of this concept is impressive. Many teachers of mathematics think most of their pupils stupid, though possibly this impression

<sup>1</sup> *Op. cit.*

owes something to the way in which mathematical information is usually offered.

In this condition of stupidity one is unable, temporarily or permanently, to see relations between unrelated things, or unusual relations between things obviously related in ordinary ways ; in short, to execute those mental leaps the classification of which by Professor Spearman<sup>1</sup> has made us realise what feats of relation-finding and correlate-eduction we have been performing for years without knowing it.

Occasionally, however, a person's apparent blindness to certain obvious relations may be due to his seeing higher and more complex ones. Sometimes clever children see a ' catch ' in an intelligence test where none was intended. Indeed, the most lovable recent example of a mind which saw unusually few catches in life was Emile Coué. Some workers in algebra come to 'forget their arithmetic. And once it was rumoured that a very famous exponent of relativity had forgotten his algebra.

But sometimes a person may be accused, and not unfairly, of " not really wanting " to

<sup>1</sup> *Op. cit.*

see the relations. To the psychoanalyst that 'really' sounds like 'tally-ho!' For the usual reproach is, "You could if you gave your mind to it." Now, if the chidden one completely realises why his mind is not given to the subject in question he is unlikely to be seriously irritated by the remark. But often it is "far otherwise." Trying hard to learn, he is acutely aware that his mind is directed only obliquely towards his task. His failure annoys him. Comment upon it enrages him. And he knows not why. If he knew he would be less angry.

All the setting here for the action of complexes containing unconscious factors! Behind affective stupidity, repression may usually be found. Many ardent reformers' lack of success with the public is due to both these factors, acting on both sides.

. . . the good are so harsh to the clever,  
The clever, so rude to the good.

An interesting aspect of affective stupidity, noticed in attempting to learn or to understand something which one wants—or thinks one

wants—to master, is petulance at failure. Subjectively and objectively, this is so like childish experience as to give grounds for attributing it to a regression. This petulance is apt to be directed upon the teacher of the irritated one, especially if the teaching takes (as it too often does) the negative form of merely indicating errors.<sup>1</sup> Though a learner can reduce the external expression and the subjective experience of his petulance, an insoluble filtrate frequently remains. That unconscious factors are involved here seems probable for several reasons. One is that any discreet sympathy shown at such a time, as by another pupil, especially if he be a better performer, is apt to evoke affection, very un-grown-up both in quality and quantity.

Possibly an extreme example of affective stupidity occurs in the type of 'faint' which is experienced by some persons in the face of a situation presenting unexpected difficulty, such as danger or suffering. In this there may be some element of self-preservation, related to those described by Rivers as methods of

<sup>1</sup> Cf. *Skill in Work and Play*, pp. 71 ff.

reaction to danger.<sup>1</sup> That it often fails or succeeds only in part would be expected. Such a hypothesis would help to explain the comparative absence of faints in the young woman of to-day as compared with her predecessor of a century ago. For, though Miss 1928 has collected many epithets, only a blind-deaf critic would call her affectively stupid in the simpler situations of life. Or is it that she is less often affectively stupid in the increasing number of varied situations which demand quick sympathy with persons in her immediate vicinity? The increase, for women, of team games, of communal and commercial life, the freer mixing of the sexes and the striking diminution of differences between them, both in outward appearance and in their habits, tastes, language, and behaviour, would all tend in this direction.<sup>2</sup>

As a result of such factors, and of the differ-

<sup>1</sup> *Instinct and the Unconscious* (Cambridge, 1920), pp. 52-60.

<sup>2</sup> It is not without significance that in his recent book, *Modern Ski-ing*, Mr. A. H. D'Egville, a ski-runner of almost uniquely wide experience, deems it wise to hint that the equality-attitude towards women on long runs, especially with regard to fatigue or injury, has been overdone.

ence in social attitude towards the 'faint,' women show less affective stupidity towards situations which were formerly supposed to be men's prerogative. Sometimes this seems offset by a little more towards those which used to be considered, and some of which for physiological reasons must for years be, the prerogative of women.

Of laziness as described in literature, we find that as there is one kind canonised by some famous men of letters, so there is another which they denounce.<sup>1</sup> In the first place, they often maintain that industriousness cramps the free exercise of genius ; in the second, ' busyness ' is often embraced as a substitute for thinking, or for a job in hand which offers obstacles. One need not illustrate this to psychologists. William James writes :

" One snatches at any and every passing pretext, no matter how trivial or external, to escape from the odiousness of the matter in hand. I know a person, for example, who will poke the fire, set chairs straight, pick dust-specks from the floor, arrange his table,

<sup>1</sup> Professor C. H. Herford kindly pointed this out to me.

snatch up the newspaper, take down any book which catches his eye, trim his nails, waste the morning *anyhow*, in short, and all without premeditation—simply because the only thing he *ought* to attend to is the preparation of a noonday lesson in formal logic which he detests. Anything but *that!*”<sup>1</sup>

Janet’s ‘secondary and ineffective actions’ characteristic of the psychasthenic are well known. Hazlitt and R. L. Stevenson both discourse on this busy laziness. Hamlet, too, who put enormous energy into doing everything except the matter in hand, justifies himself to Polonius :

Thou find’st to be too busy is some danger.

Nowadays hints for study, which show the influence of modern psychology, remind the student of the urgent advisability of getting down to work at once, even if it means the eventual jettisoning of the first few minutes’ work written. Going through the motions of work such as writing is probably an important factor in ‘warming-up’—a simple phrase which obscures a complex set of events.

<sup>1</sup> *Principles of Psychology*, vol. i, p. 421 (London, 1901).



## CHAPTER V

### THE PSYCHOLOGICAL ASPECTS OF WORK

#### *Psychological Classifications of Work*

A classification of different standpoints from which the psychologist may regard work will now be attempted. The result is not likely to be complete or immune from criticism. Yet one need not apologise for proposing to discuss how work feels from the inside. It may afford a change from more numerous accounts of how it ought to feel !

#### *Creative, Repetitive, and Subdivided Work*

For our purpose a division of work which may be useful is that into creative, repetitive, and subdivided. Let us begin with the aristocrat of these three—creative work.

Some kinds of work, whether classed by society as lofty or lowly, bear objectively the mark of personality. The output or the per-

formance, or both, are distinguished by an individual style. Such work is experienced as personal, self-expressive, and new (where it is not a mere repetition of actions which once were creative). It is exemplified by artists, poets, musicians, scientists, and some administrators. Yet veritable creative work occurs in humbler tasks. Whenever any performance is new, for its performer, it will appear to him as creative, whatever may be the impression produced upon an external observer.

It is a truism that many persons would like such creative work to be their daily occupation. But it is as true, though scarcely a truism, that many, who are capable of creative work, would not choose it for a living. And this for various reasons, some of them good.<sup>1</sup> Many people cannot afford it because it may be badly paid or unpaid. Others believe that the community, as at present constituted, cannot afford it either. How many middle-class men, for example, who wear tailor-made clothes, believe that they can afford hand-made shoes?

<sup>1</sup> This question is more fully discussed on pp. 159 ff.

It is not surprising that many persons gladly accept the implications, both philosophical and financial, of Mr. Henry Ford's terms of work. Yet, as every economist and student of society knows, many problems will be raised if this acceptance becomes widespread ; and not only by those whom he terms "parlour experts."

It is obvious that to-day many kinds of work neither are, nor should be, creative. Few people wish the locomotive-driver or telephone-operator to introduce a personal style into his daily performances. But these are extreme cases, and many common jobs cannot be distinguished so sharply from creative work.

All this may appear to be, and perhaps it is, a string of platitudes. Yet platitudes are often important and sometimes true. In view of this last possibility they have been included for the sake of completeness.

But one man's platitude is another man's epigram, a paradox to a third, a whacking lie to a fourth. And all these and more is the belief that self-expression is undesirable in most workers. To many persons this creed

may seem reason itself ; has not Mr. Bernard Shaw somewhere admitted that to drive on the wrong side of the road is an undesirable way of showing originality ? But to those who see in it no problems, a little reading might be suggested. Samuel Butler's *Erewhon*, Mr. Henry Ford's *My Life and Work*, Mr. Arthur Pound's *The Iron Man in Industry*, Mr. Karel Čapek's thoughts on leaving the Palace of Engineering at the Wembley Exhibition,<sup>1</sup> and of course his *R.U.R.*

Perhaps we may momentarily leave this vexing problem ; it will return to us in Chapter VI.

<sup>1</sup> Bear me homeward, Flying Scotsman, splendid hundred-and-fifty-ton locomotive ; carry me across the seas, O white and glittering ship ; there will I sit down on the rough field-edge where the wild thyme grows, and I will close my eyes, for I am of peasant blood and have been somewhat disturbed by what I have seen. This perfection of matter, from which no perfection of man is derived, these brilliant implements of a grievous and unredeemed life bewilder me. Beside you, Flying Scotsman, what would that blind beggar look like who sold me matches to-day ? He was blind and corroded with scabies ; he was a very bad and impaired machine ; in fact, he was only a man.—*Letters from England*, pp. 66-7 (London).

A milder version of the belief mentioned above is that originality ought to be properly labelled, employed, and paid for as such. This creed exists in two forms, which shade into each other. One assumes a strict division between the man who works with his hands and the one who plans and invents.

But the second form of this view shows slightly softened outlines ; many employers provide means whereby the manual workers may make suggestions to the planning department. If accepted, they are paid for. But equally it must be borne in mind, that from motives other than those of economic efficiency, the planning is often deliberately isolated from other departments, and that to increase the degree of this qualitative separation is the definite stated aim of those in authority.

### *Confusion of Repetitive with Monotonous Work*

Unnecessary complexities are produced by writers who through slipshod language, terse and striking expression (all these being often synonymous and attaining their finest fusion in the slogan), or hasty thinking, fail to show

that though repetitive work may, it need not be monotonous. The problems of repetitive work and of monotony<sup>1</sup> have much in common, but they must be distinguished. One may find in the dictionary a meaning of 'monotonous' which identifies it with 'repetitive,' as, for example, "uttered in one unvarying tone ; without change or variety." But in actual fact, we use the word 'monotony' when we experience this want of variety as unpleasant.

And this is the real issue. It is easy to find some processes, lacking variety, which are declared to be monotonous, while others with the same objective attributes are not. In the latter, the want of variety may not be unpleasant. It is interesting that at present, when the craving for variety in life is supposed to be intense, the type of social dancing, universally popular in many countries, is distinguished by a relative, even an absolute, lack of variety. Not only

<sup>1</sup> Cf. H. Winkler, "Die Monotonie der Arbeit," *Schriften zur Psychol. des Berufseignung und des Wirtschaftslebens* (Leipzig), Heft 19.

are the names of the different dances less numerous nowadays than twenty years ago, but some modern dances, though called by different names, are performed by many people in almost the same way. This does not seem to be anyone's biased personal impression; it is frequently supported by that acute observer of society, Mr. *Punch*. And as for the perennially announced modifications in the staple dance-steps—*plus ça change . . .*!

It will be replied that the best dancers do not perform different dances in the same way, and, moreover, that their steps are subtly altered to suit the tempo, accent, and deeper meaning, if any, of different tunes written for the 'same' dance. Yet, true as this is, many who can be seen obviously, even blatantly enjoying the dance, are not the best dancers. And it is just these numerous average or just-below-average performers (an examiner might call them the "beta-minuses" or "gamma-pluses") who seem happy in performing for many hours a simple succession of steps. This reply generously waives the possibility, suggested by their facial expressions,

that some of the best dancers enjoy themselves less than these others.

Not a few ordinary people, therefore, appear to derive much pleasure either from performing—or, at least, while they are performing—a relatively unvaried series of steps for a long time. That the music to which they dance is often considered monotonous by non-dancers could probably be demonstrated from the letter-bag of the B.B.C.

### *Simple and Complex Repetitive Work*

It must not be forgotten that some repetitive work is by no means simple. To perform it involves many mental and bodily happenings, each highly organised and each different. Other repetitive work is minutely divided. Its ultimate units, distributed to different workers, may necessitate no thought and only the simplest identical unskilled movements. But many criticisms, directed towards repetitive work in general, are valid only of simple repetitive work. This important distinction, however, is seldom clearly made by critics.



*Why is Repetitive Work not Monotonous to Certain Persons?*

If the word 'repetitive' be used to mean a purely external objective feature of events happening in the physical world—for it is doubtful if mental events ever can repeat themselves—and 'monotonous' to signify a mental condition (paralleled, of course, by bodily events), we may inquire why repetition and monotony do not inevitably occur together. We may begin by assuming that persons who do not experience repetition as monotonous are themselves supplying variety, which is super-added after the external situation has acted upon them. Let us try to distinguish the ways in which such modifications may happen.

*Repetition and Habit-formation*

Repetition favours habit-formation. Consequently some persons welcome repetitive work because it enables their minds to busy themselves with other matters.<sup>1</sup>

<sup>1</sup> This does not seem to be true in all instances. Some workers in a laundry, when questioned, said they liked folding sheets because it gave them something to think about.

To some workers this aspect of repetitive work is pleasant and desirable. A few welcome the chance to think connectedly about other things. There are stories of Lancashire weavers who studied Latin and Greek from books propped against their looms. More workers, perhaps, spend such time in mind-wandering,<sup>1</sup> or—if it be possible—in “thinking of nothing.” A laundry-worker once pitied a factory investigator because she had the monotonous job of “writing down and adding up figures,” i.e. making scientific records. The compassionate one’s work was spreading starch upon collars with one finger.

### *Repetitive Work as a Setting for Fantasy*

Repetitive work is liked by some because of its almost ideal opportunities for fantasy. Under these conditions some workers indulge in long day-dreams, in which many unsatisfied desires are fulfilled.

This might appear to be a merciful accident ;

<sup>1</sup> I use this popular term to indicate the passage of unconnected thoughts, and to distinguish this activity from continuous fantasy, which will be discussed later.

'civilisation' for once curing some of its own ills. And here and there this may be true. But there are fantasies *and* fantasies. Some are constructive, securely rooted in possibilities, while others are merely the ways in which their possessors or victims flee from reality, or what they take to be their reality.<sup>1</sup> Now there seems to be no doubt, despite certain disagreements amongst the psycho-pathologists upon matters of detail, that many of the 'functional nervous disorders,' 'nervous breakdowns,' or psycho-neuroses, are elaborate chronic flights from reality. Working conditions which favour such reality-evasion might be compared to climates in which certain disease-agents attack the body more virulently. That many persons introduced to these climates resist such diseases and that others rapidly succumb is an important physiological fact.

Such an analogy would be drawn by certain writers. Yet it will help us little until we know more of the nature of the minds which

<sup>1</sup> Cf. Elton Mayo, "Day-dreaming and Output in a Spinning-mill," *Journ. of Nat. Inst. of Industrial Psychology*, vol. II, pp. 203-9 and 291-9.

are apparently unharmed by repetitive work. Granted that it gives facilities for such flights from reality, we have still to discover why 'nervous breakdowns' do not affect all repetitive workers.

There are probably several reasons. One is that many persons do not regard such work as their chief reality. To them it is but a means, through shorter hours and higher pay, to obtain or intensify more desirable experiences outside their work. To dream of these goals during their work may even stimulate them. Increase of output just before a holiday period (a commonplace of industrial statistics) illustrates a temporary effect of this factor.

But—output apart—many people make the whole of their life tolerable or pleasanter through their fantasies. This result may be achieved in different ways. Some fantasies may be merely modifications, slight or extensive but significant, of the actual conditions or aims of the daily work. These alleviations are not confined to the rank and file. Employers have also been sustained by dreams, intimate or shared, which transform their daily routine.

It would lead us away from our subject to develop the speculation that everyone who is consistently keen on his work has edged it around with private imaginative embroidery. But there are fantasies of another kind, those which are related, only by antithesis, to the person's actual life.

This chapter was being written in the week that Rudolf Valentino died. A current notice said :

“ If Valentino was important to the world of films, it was neither in an æsthetic nor in an historical sense, but simply in the personal relations existing between himself and an audience several millions strong. They loved him, these millions : loved just his photograph on the screen. They wrote to that shadow and sent presents to it, formed leagues and societies to be faithful to it, composed verses in praise of it, dreamed of it, hung their walls with copies of it. It held for them all the beauty that was missing from their own lives, all the glamour that they were beginning to fear the world did not hold. They were no longer children. The kinema had taught them not to believe in magic any more. But they came

to Valentino with all their rejected magic, and piled it round him, dreams of princes and blue nights and the silent East, dreams of sacrifice and valiance and happy dreams of pain—brought the magic to him and worshipped him in the middle of the magic, and lived their own lives more gladly for it, praising him for the glory that they themselves had wrought.”<sup>1</sup>

Can such compensatory fantasies be condemned without trial, or conveniently dismissed as ‘pathological’? That they may be pathological is certain, but beyond that there is not much to say.

It is true that some day-dreamers could actualise their dreams if they would try more and dream less. But their neighbours might not desire such dream-fulfilments. During the General Strike many persons must have indulged the fantasy that, given the chance, they could command the situation. Perhaps both we and they are happier as things are.

### *Repetition and Mechanisation*

Another objection to repetitive tasks is that for long periods they ‘mechanise’ the workers’

<sup>1</sup> C. A. L., in the *Manchester Guardian*, August 28, 1926.

behaviour. But this is going rather too fast, for the term carries more than one meaning. Distinctions between these meanings are indispensable for clear thinking ; yet they have seldom been made by writers on this subject.

First, unless the term 'mechanisation' be used deliberately to convey a metaphor, it is objectionable in this context. If any real machines form part of our bodies (an assumption), and if, when integrated with the intact organism, they work in the same way as when excised from the body (which is certainly not true), some human activities might be compared with the activities of machines. Provided of course that in carrying out the strivings of the intact body they did not thereby become imbued with anything like awareness or consciousness. And there's the rub !

The 'behaviourist,' however, declines to be rubbed. Turning his back resolutely on the problem, he busies himself with another. Unfortunately, this does not increase the value of his opinions concerning the spurned problem,

vainly appealing to his sightless shoulder-blades.

Though it may seem academic, perverse, and retrograde to raise the question of the "seat of consciousness," we may not pretend that even parts of the body remote from the brain must necessarily act 'mechanically' because of that remoteness. I use a telephone in order to send a cablegram to a friend thousands of miles away. I may not know or care how the necessary machines work. I abstractedly brush away a fly which has settled on my face. I may not know or care how my hand and arm work. But the physical events in the telephone and telegraph are not only not a part of my personality, they do not affect my experience. In contrast, some of the operations of my hand and arm are felt as part of my personality, and the manner of their happening affects my experience. If the telephone acts mechanically, my hand and arm do not.

Many human actions which are said to be 'mechanical' are therefore incorrectly described, because an adjective which belongs to another sphere has been illegitimately imported.



All that is meant (it is a big all !) is that usually we are aware of them unclearly.<sup>1</sup>

Their degree of clearness, however, may be increased at any moment. You are cycling along a quiet lane, thinking clearly of many things, but not of the actions involved in balancing and steering. Around the corner comes a car which gives you only two feet of sticky mud in which to pass. Nothing unconscious about your response !

So called 'mechanised' action, then, is not 'unconscious' in the psychoanalyst's sense. It is not inaccessible<sup>2</sup> to consciousness. Rather it is action of which we are not clearly aware. And, in any explanation of behaviour, one should gravely suspect the terms 'mechanical' and 'automatic.' The latter may be occasionally harmless. Yet its detention and examination on a psychology's Ellis Island might be a good thing. We are perhaps justified in holding that both terms may eventually prove to

<sup>1</sup> Cf. T. H. Pear, *Remembering and Forgetting*, pp. 147 ff. (London, 1922).

<sup>2</sup> Cf. C. D. Broad, "Various Meanings of the Term 'Unconscious,'" *Proceedings of the Aristotelian Society*, vol. 23 (N.S.), (London, 1923).

have hindered the study of the behaviour of living things. This seems especially likely if they are applied to series of complicated acquired actions which have become habitual.

Moreover, the functions of dissociation in the human mind are not sufficiently understood to justify the belief that it is always and invariably undesirable. For there is probably a difference between the *dislocation* of mental processes; a mere 'out of gear' condition, as when a person, absorbed in one task, is absent-minded towards another, and the pathological condition of *dissociation*, in which processes seem to be forcibly held apart. Between Sir Isaac Newton who boiled his watch, and 'Sally' who made life hideous for her other and more decorous self, Miss Beauchamp,<sup>1</sup> there may be a continuous set of gradations. But the intervening distance is surely immense.

### *Repetition and Freedom from Responsibility*

One kind of worker chooses or continues to perform repetitive jobs because they involve

<sup>1</sup> Cf. Morton Prince, *The Dissociation of a Personality* (New York, 1906).

little responsibility : few things can go wrong and "nobody bothers me." How far this trait is inborn and how far it results from certain systems of education (it is significant that those which claim to produce the opposite characteristic are usually the most expensive ones) is a matter about which we know little. Of the fact that the first type is widespread in America, Mr. Henry Ford's book, *My Life and Work*, is a grateful acknowledgment.

### *What is Monotony ?*

The various meanings which the word 'monotonous' ought *not* to convey have now been given. Thus negatively (though such a procedure is hardly to be recommended) it has almost been defined. In Mr. H. W. Fowler's *Dictionary of Modern English Usage* we read :

"The secondary sense of *monotonous* (same or tedious) has so nearly swallowed up its primary (of one pitch or tone) that it is well worth while to remember the existence of *monotonic*, which has the primary sense only."

It might be useful, therefore, to say that

monotonic work may or may not be monotonous. Since, however, on page 119, we took up the position that though, in gross, the actions and mental processes which constitute repetitive work may appear to be identical, the detailed mental effect may or may not be that of sameness, it seems advisable to use this word monotony as little as possible. In this we are supported by the above disclosure that the two meanings of 'monotonous,' like two once-famous boa-constrictors, are messily joined in unfinished deglutition.

The lack of variety in repetitive work, then, may be experienced as distasteful. That distastefulness is usually called monotony. But such 'pure' monotony (if the term be worth retaining in this connection) seldom exists very long alone. Usually there enter unto it three devils more wicked than itself—boredom, fatigue, and weariness.

Boredom, of course, is not always due to sameness in the stimuli impinging upon one. Mr. Aldous Huxley, in *Two or Three Graces*, has depicted boredom of another kind, and indeed invites us to distinguish several types

of bore. But what is the predominant factor in boredom?

We may be bored with a situation either because we know it too well or too little—a fact of importance to organisers of broadcasting programmes. Since the situation fails to attract our attention, it presumably does not appeal to either an instinct or a sentiment. Even the boredom of the ‘intellectual’ results from failure to arouse sentiments containing the instinct of curiosity. And sentiments actuated by the parental instinct or by acquisitiveness render some persons incapable of being bored by the most repetitive tasks.

But whatever the cause of boredom, our behaviour, both muscular and glandular, towards the boring situation is similar. We want to get away and cannot. The outward signs of boredom—fidgeting, yawning, or the dilated nostrils and tense lips which proclaim a successful struggle against it ; a distant look in the eyes ; the inward experiences, aching in the limbs, itching to move, to run, to shriek, mental images sparkling like oases or mirages of people and places, never so desirable as now

—all suggest that our primitive uncivilised selves would rush away, shriek, and, like a baby or Charlie Chaplin, push away the face of the bore.

It is the *inhibition*, for relatively long periods, of such natural behaviour which constitutes the unpleasant side of boredom. All prevention of movement naturally requires the expenditure of energy. And so, although boredom<sup>1</sup> and fatigue are certainly distinguishable, the former may lead to the latter.

It is with the word 'fatigue' that trouble begins. A term which promised well in Mosso's time—so well that most popular articles on the subject, even now, consist merely of extracts from his famous book, published years ago,<sup>2</sup> and blithely disregarding the later years of disappointments—has caused so much confusion that later writers like Professor Bernard Muscio<sup>3</sup> and Dr. John B. Watson<sup>4</sup> have

<sup>1</sup> Cf. A. Hoche, "Langeweile," *Psychologische Forschung*, 1923, iii, pp. 258-71.

<sup>2</sup> English translation, *Fatigue* (London, 1904).

<sup>3</sup> "Is a Fatigue Test Possible?" *British Journal of Psychology*, vol. 12 (1921).

<sup>4</sup> *Op. cit.*

doubted the serviceability of the concept. In 1925 the physiology and psychology sections of the British Association for the Advancement of Science decided not to hold a joint discussion of fatigue, about which so little was known, but to discuss factors which lessen it, such as economy of effort and the acquisition of skill.

The most attractive course would be to reserve the term 'fatigue' for conditions of wear and tear of the physical organism, requiring for their repair, time and the healing processes of nature, or perhaps, in the future, her substitute, acid sodium sulphate, as Dr. J. B. S. Haldane has suggested in *Dædalus*. The processes and cure of fatigue would be problems for the biochemist. The physiologist and psychologist would supplement scientifically the pertinacious but crude methods employed by the ordinary man for its evasion. Perhaps, as a result of this unnatural interference, an all-round increase of insomnia might result. Yet at present those who avoid fatigue most successfully seem to sleep fairly well. And man's efforts to discover the nature of sleep,

as they are presented in the average text-book of physiology, do not seem to have succeeded sufficiently to frighten off experimenters in fatigue-prevention.

The formal conveyance of fatigue problems to the physiologist, who might perhaps accept them under this name if they were filtered free from psychological implications, would now clear the way for a useful technical term. The word *weariness* would be used to mean awareness of fatigue.<sup>1</sup> Thus we could translate into less equivocal terms the results of technical researches by Rivers,<sup>2</sup> Arai,<sup>3</sup> and others, on fatigue, by May Smith and others on the effects of loss of sleep, without risking constant misunderstanding. The fact that we may be fatigued without being weary is known to every athlete, to every dancer, and to all who have suffered insomnia as a result of overwork. For this reason, introspective evidence concern-

<sup>1</sup> Cf. the German *Müdigkeit* (weariness) and *Ermüdung* (fatigue).

<sup>2</sup> *The Influence of Alcohol and Other Drugs on Fatigue* (Cambridge).

<sup>3</sup> Cf. Watson, *op. cit.*



ing fatigue is seldom trustworthy. But in the absence of a conclusive test for fatigue, little can be done at present except to avoid it in its extreme forms. For there appears to be no doubt that a moderate degree of weariness, provided that it can be completely dissipated by sleep, is a normal and desirable characteristic of the close of the day.<sup>1</sup>

The last ten years' work of the Industrial Fatigue Research Board in Britain has been chiefly directed towards the discovery of means to avoid and minimise fatigue, and less towards finding out its ultimate nature. To its reports <sup>2</sup> the readers may be referred, especially to Nos. 3, 5, 14, 15, 22, 23, 25, 26, 29, 32, 39-44.

No. 43, on the causes of telegraphists' cramp, by Dr. Millais Culpin, Mr. Eric Farmer, and Miss May Smith, helps the lay reader effectively to comprehend the vast number of conditions which bring about 'nerviness' in those individuals who are doing skilled work involving responsibility, but are temperamentally unfitted

<sup>1</sup> Cf. R. H. Thouless, *The Control of the Mind*, pp. 121-37 (London, 1927). *Social Psychology*, pp. 174-8.

<sup>2</sup> Published by His Majesty's Stationery Office, London.

for it. The findings in this report are valid far beyond the range in which they were made. The 'pseudo-fatigue' of the psychoneurotic, i.e. a fatigue towards one set of circumstances which disappears when other demands are made upon the organism, is so common in persons who overwork under conditions of responsibility that no account of fatigue is complete without a reference to it.

Mention should also be made here of the extensive work upon fatigue published in Germany.<sup>1</sup>

To attempt completeness, it might be added that the terms 'boring' and 'fatiguing' are often used where 'irksome' would be better. This may be made clearer by an example. To a person unfitted, both temperamentally and by training, to be a probationer in a hospital, a number of duties will be invariably and continually unpleasant. They are not boring, for they demand close unbroken attention and they cannot be performed mechanically. They are not fatiguing; each one lasts only for a

<sup>1</sup> See, for instance, *Arbeit und Ermüdung*, by E. Atzler, H. Betke, G. Lehmann, and E. Sachsenberg (Berlin, 1927).

short time ; in fact, their irksomeness may consist in the fact that so many changes have to be made, that "one can never settle down to anything." They are just consistently unpleasant. Every housewife will give dozens of examples.

There is nothing new in this paragraph. But it is important that irksomeness should not be confused with boredom and fatigue. The inventor of labour-saving devices, especially in the home, reduces irksomeness. But the advertiser of his products complicates matters a little by suggesting the irksomeness of certain activities to some persons to whom, before this illumination, the thought had not occurred.

Wyatt, an Industrial Fatigue Research Board investigator with years of wide experience, expresses present-day industrial conditions temperately when he writes :

"Operatives are, within limits, able to adapt themselves to uniformity in the conditions of work. Conditions which, at the outset, may be almost intolerable because of the tedium and strain they produce, are afterwards endured without complaint and in some cases with a

certain amount of enjoyment. Because of this adaptability on the part of industrial workers, repetitive processes are made more tolerable, and the existence of boredom is not nearly so prevalent or pronounced as persons unfamiliar with industrial conditions are frequently led to believe.”<sup>1</sup>

*Alleviations of or Remedies against Monotony*

It is easier to cite the various attempted alleviations of or remedies against monotony than scientifically to discuss its general nature. Yet at this stage it is difficult to separate apparently ‘common-sense’ cures for ‘monotony’ from innovations which may temporarily dispel it because of their intrinsic interest. And some arguments for and against undiluted repetitive work sound like special pleading. In this state of the subject, therefore, it is perhaps wise merely to give a list, with a few incidental comments, of alleviations of monotony.

<sup>1</sup> *British Journal of Psychology*, xvii, pp. 192-209 (1927). A summary of the subject is given in the present writer’s article on Repetitive Work in Pitman’s *Dictionary of Industrial Administration* (London, 1928).

(1) *Rest pauses*.—Different kinds of rests, different lengths and different distributions of rest-pauses, are continually being examined by investigators. The reports of the Industrial Fatigue Research Board, especially Nos. 25, 26, and 32, deal with this special question in great detail and with regard to very different types of work. Usually the shorter the work-period, the more buoyant is the attitude of the worker.

(2) *Changes in activity, introduced within the spell of work*.—Experiment has shown that the greater the change, the more favourable are the results obtained. There seems to be an optimal duration for each type of work, which varies with different types.

(3) *Socialising isolated work*.—Boredom is considerably reduced where the workers form a group and can talk while working. In some kinds of work this would obviously condemn grouping. In other kinds, however, talking is not necessarily so injurious to quality or quantity of output. Miss Isabel Burnett's investigation into repetitive work<sup>1</sup> suggested

<sup>1</sup> *Industrial Fatigue Research Board Report*, No. 33.

that judicious grouping might separate workers so that, though talking was not impossible, it was just difficult enough for them to be encouraged to concentrate on their work while not feeling isolated.

(4) *Reducing the size of the immediate task.*—Boredom is less when a worker is supplied with, say, about an hour's material at once instead of being confronted with a discouraging pile to last a day or more. But in this connection another factor must be respected. The pleasure of production must not be minimised by too rapid disappearance of the product. In a munition factory the workers complained bitterly that they could not see the growing pile of their finished work, when it was whisked away. The supervisor satisfied them by allowing each a chalked-up record of their output.

(5) Workers on piece-rate are generally less bored than those on time-rate, for reasons easily grasped.

(6) Some employers encourage singing as a remedy against boredom. The effect of music has not been scientifically tried, though in these days of gramophones and wireless it is

now easy to supply music to a factory. In the absence of convincing evidence one would suppose that its rhythm should be stimulating, and should not interfere with any actual rhythm required in the work ; also that its effect might be good where great care had not to be taken to avoid accidents or spoiled work.

(7) It is occasionally asserted that some apparently monotonous work is not really monotonous to the expert, for he is constantly detecting small differences, e.g. in his material, which the outsider does not notice.<sup>1</sup> It is notorious that, to the non-expert, hens and sheep are apt to appear alike, but not to those who deal with them professionally. Some persons find teaching monotonous because they do not, or have no time to, perceive interesting differences between their pupils. But in many varieties of modern subdivided work, where similar units are dealt with at a great rate, e.g. in packing small rectangular pieces of wrapped chocolate, there can be little chance to appreciate minute differences. And moreover, un-

<sup>1</sup> Cf. H. Münsterberg, *Psychology and Industrial Efficiency* (London, 1913).

less efficiency be improved by such appreciation, it is out of place. By its means output may actually be prejudiced both in quantity and quality.<sup>1</sup> Everyone knows that in doing unfamiliar repetitive work for a short time, irrelevant details force themselves upon one at first and are later disregarded.

(8) Though little can be said about it here, it might be suggested that the 'muscular sensuousness' mentioned on page 69 may render some forms of repetitive work quite pleasant; especially when through long practice we have become adapted to some of its difficulties. Digging a plot for fun and exercise, rowing a boat easily, skating or skiing along easy ice or snow, merely to get somewhere, swimming for fun, hammering—all these repetitive activities give pleasure. And many children love to repeat an action or a musical phrase with (to the adult) maddening persistence.

(9) Even the simplest task may become intensely interesting when we try to beat our

<sup>1</sup> Cf. Mr. Frank B. Gilbreth's well-known study of assembling a braid machine, *op. cit.*, p. 43.



own or someone else's record. This assumes, of course, a number of factors, such as pride in ourselves or acquisitiveness. It often occurs in sport but less often in industry, though here in the form of competitions it is well known.

## CHAPTER VI

### IS INDUSTRIAL SKILL WORTH WHILE ?

No apology is offered for this question. If it seems unnecessary to the reader, this chapter may give reasons for changing his opinion. Skill may become one of the gravest problems of our time, for all who work for their living and for some who do not.

It can easily be demonstrated to the least reflective that curious things are happening to the skills with which we are acquainted. Some are belauded, even worshipped. At the date of writing, not to know the names of Kreisler, Pavlova, Tilden, Hobbs, Bobby Jones, Babe Ruth, Augustus John, Epstein (who shall put their arts in order of merit ?) is to be even as a High Court Judge. Almost certainly 75 per cent. of the time required in learning music is devoted to the acquisition of skill. In the arts, including surgery, and in games and sports, we revere the skilled person.

We try, if we are sensible, to acquire or improve in our stumbling way some kind of skill in ourselves.

And in daily work? But this must come later. To discuss the degree to which skills are called for in modern industry, without inquiring into the function which skill plays in the life of the healthy individual, would approach the problem from the wrong end. Let us therefore first inquire how skill appears as seen through the eyes of different persons.

To readers familiar with psychology, it is unnecessary to mention, still less to explain, that detachment is the psychologist's *métier*. But this book may be read by some who are more familiar with the treatment of this chapter's theme from a partisan standpoint. To them, without some explanation, this chapter may seem irritatingly aloof. As certainly it will annoy others because it does not "let the Whig dogs have it."

Yet impartiality is especially necessary here. A decision upon the form of this chapter was postponed until a fair number of books dealing with both sides had been read.

There is no lack of them ! As a beginning we might read Mr. H. M. Kallen's list. He writes<sup>1</sup> :

“Industrial society, deprecatingly known as the society of the machine age, is notoriously under indictment. The counts against it are many and long, contributed from every walk of life, from every class in the community. Their mounting tale is as old as the tale of machine industry itself, and each year adds a new burden to the sum of its sins. Its accusers and opponents are of the most diverse spirit and temper, the most contrasted, the most conflicting visions of life and programs of salvation. Robert Owen and Thomas Carlyle, William Morris and Abraham Lincoln, Carl Marx and Ilya Tolstoi, Sidney Webb and Rabindranath Tagore, Anatole France and Franz Oppenheimer, Friedrich Nietzsche and Robert La Follette, Nikolai Lenin and Edward Carpenter, Jean Jaurès and Gene Debs, Charles Kingsley and Charles Steinmetz, John Dewey and Francis Place, Henri Bergson and Henry Adams, Bertrand Russell and Edward Bellamy—these are the merest handful of the great

<sup>1</sup> *Education, The Machine and the Worker*, pp. 1-2 (New York, 1925).

company which brings accusation against the automatic machine and what a century and a half of its use and growth have done to the life of man in the western world. Each charge is a special charge. It may spring from any conceivable motive or passion. It invokes any cause which supplies it with a plausible rationalisation. Conservatism and radicalism, individualism and collectivism, liberty and authority, materialism and idealism, goodwill and self-interest, mechanism and life, thrift-love and wastage, have each their censures to bring."

Ruskin, Rossetti, Dowson, and Flecker might be added to this list. Then the reader might consult Mr. Kallen, Mr. F. W. Taylor and Mr. Henry Ford, Mr. and Mrs. F. Gilbreth, Mr. Arthur Pound, Mr. Karel Čapek, and Frä. I. M. Witte, who has made the only impartial statement that it has been my luck to see.<sup>1</sup> This should cool his brain (and he will need it!) enough to prepare him for that amazing series of bites into and evasions of reality, Thea von Harbou's and Fritz Lang's film *Metropolis*.

<sup>1</sup> *Taylor—Gilbreth—Ford* (Berlin, 1924).

The books which deal with industry as it is to-day differ greatly in style and methods. Some of the most seductive (except for the blasé reader of slogans) employ terse sentences containing monosyllables. They are not necessarily any truer for that. Then there is the method which, often unconsciously, misleads by enunciating as 'laws' premature generalisations about the workings of the mind or body. There is the book which, presupposing the reader's political colour, states as axioms some very dubious postulates. Amid the welter of opinion can we find anything upon which scientists would be agreed? Or can we separate out some causes of the confusion, and so contrast the different opinions?

Among these causes there are two of prime importance. Clear thinking is hard to find as to what skill *is* and what it *does*, as to its *nature* and its *functions*.

In Chapters I and II we tried to describe the nature of skill. We shall now attempt to see what functions it performs (*a*) in the outer world, physical and social, (*b*) in its possessor's

body and mind. Without answers to these questions we cannot profitably ask whether its increase, decrease, or disappearance can have good or bad effects. And since very different abilities are called skill, and since they fulfil various functions, our answers cannot be simple.

### *Skill as Power*

Skill appears to its possessor as power over complex patterns in the physical world. (Let us for the present except that interesting skill known as self-control. It too may be chiefly control over one's muscles, as Coué well knew. But the difficult question of control over one's mental imagery probably spoils the simplicity of this explanation.) The experience of exercising this power, either in actuality or in imagination, affords enjoyment of a very special kind, sought by many musicians, artists, and players of games. Though we take it for granted, it is worth recording that many a man's fierce thirst for this enjoyment has wrecked his career as certainly as alcohol. For many others it has made their careers and protected them from alcohol.

The consciousness of added power in any direction cannot fail to widen one's personality. And to contemplate a skilled person, happy in his work, is a high form of pleasure, as every lover of Hans Sachs in the *Meistersingers* knows to his delight.

Power leads to power ; skill-power often extends rapidly far beyond the sphere in which it was originally exercised. The skilled musician or lawn-tennis player may succeed socially, entering circles into which his skill is the only key, as he sometimes discovers on losing it. But it often leads to financial power, becoming a bargaining asset, as in the boxer and the portrait painter.

### *Skill as a Bargaining Asset*

And here we enter upon a story which has yet to be told in full. Successful bargaining assets may be of two very different kinds : one based upon verifiable realities, the other upon bluff. Examples of the former class are the skill of the first-class musician and that of the captain of a great ocean liner. We can test their value, if we are employers, by inviting



other less highly-paid persons to do similar work, and comparing the result.

When skill of the second type is used as a bargaining asset, the bluff in it is not always completely conscious. Often it remains 'uncalled' for years. Some large-scale results of calling such bluffs were seen in the collapse of the General Strike. It then became clear that many essential occupations, as at present practised, do not involve skills of any very high order. For, though the skilled men were substituted by unskilled, very little damage resulted.

As a natural result, in several newspapers we immediately read of 'the myth of skill.' Those articles contained much truth. But the problem is more complex than it appeared to be in these pithy paragraphs. (Such pith was, doubtless, manna to many hungry mouths. Its origin was easier to trace, but like manna it is unsuitable as a permanent diet.) Even, however, if case after case of skill-substitution be examined, there is no retreat from this consideration. If in the light of the General Strike, people still class the driving of motor-

buses and tube-trains as even fairly high-grade, they must find a new word for the skill of the surgeon, the analytical chemist, and even the suburban lawn-tennis champion. For no amount of good-will in novices added to a few days' practice will produce efficient substitutes for *them*.

That much bricklaying is skilled goes without saying ; that little skill is required for ordinary bricklaying is rapidly becoming common knowledge.

But final judgment upon the general situation must be affected by several important facts.

(1) Some substituted performances during the General Strike were adjustments, not to everyday demands, but to new and simpler ones. Emergency railway-signallers, for example, often performed jobs which bore only a schematic resemblance to every-day conditions. For, as we mournfully remember, most of the trains were in their sheds.

(2) During the last few years, changing demands have caused some skills to become simpler in pattern. They have been gradually degraded into simpler skills, but called by the

same name. This is a general tendency. For example, to avoid 'howling' in a wireless set two years ago required skill. Nowadays, inventors of fool-proof sets are replacing the buyers' skill by the result of their own.

(3) Some skills are completely disappearing, being ousted by change of fashion or the introduction of machinery. Domestic bread-making is a good example of this kind.

*The 'Distillation' of Skill.*—All these facts show that fractional distillation of industrial skill is taking place. The more valuable, higher skills increasingly become the property of the few. For the many are left low-grade, simple performances which resemble real skill about as much as vaseline resembles petrol. And petrol contains more driving force than vaseline. But the vocabulary of chemistry is a few centuries in advance of that of industrial psychology.

In some places this fractional distillation may have developed naturally. In others it has been deliberately planned. For both Taylor and Ford it is the *sine qua non* of their systems.

Of minor psychological but major political

importance is the fact that in some industries it has long been known that certain 'skilled' occupations are not what they were. But until recently it was convenient not to mention it. In others, as investigators will testify, the discovery that a skill was simpler than it had been supposed surprised everyone.

As a bargaining asset, some skills have completely lost their value. Mr. Arthur Pound writes of :

"the evidence presented by a survey of certain large allied plants (in the U.S.A.) that 70 per cent. of the employees could be fitted into their jobs in three days or less.

"Children of twelve can tend many automatic machines as competently as adults. Youths, in fact, approach their highest wage during the very years in which the boys of a generation ago were earning less than living wages as apprentices. Eighteen to twenty-five are the most gainful years for the 'machinate mammal.' "

Mr. Ford writes of his own factories :

"The length of time required to become proficient in the various occupations is about

as follows : 43 per cent. of all the jobs require not over one day of training ; 36 per cent. require from one day to one week ; 6 per cent. require from one to two weeks ; 14 per cent. require from one month to one year ; 1 per cent. require from one to six years."

In other words, 85 per cent. of these jobs require not more than two weeks for proficiency to be attained.

This account of the distribution of high- and low-grade skills in a vast industry speaks for itself. So does the fact that such systems are the friend of the defective.

This can be expressed in more than one way. Here are two of them. One is to express the opinion that there is a job in this world for every man, however humble, slow-witted, or crippled.

Mr. Ford writes :

" I am quite sure that if work is sufficiently subdivided—subdivided to the point of highest economy—there will be no dearth of places in which the physically incapacitated can do a man's job and get a man's wage."

And Mr. Pound :

“ Neither does the ‘ Iron Man ’ [i.e. the present machine-system personified] get on the nerves of those below the average mentality. He is a consistent friend of the defective. Just as deafness is an advantage in certain industrial occupations—our shops employ many mutes with satisfaction both ways—so mental lacks may become assets for certain industrial purposes. Given enough sense to master simple routine occupations, and enough appreciation of duty, or fear of relatives, to come to the shop regularly, the below-average person can soon be adjusted industrially. And, when adjusted, the moron will be found immune to many of the pricks which irritate the normal man into seeing red, less fretted by monotony, less worn by rhythmic clatter. There is less in his soul striving to release itself ; he has brought into the shop comparatively little that the shop cannot use ; and so he accepts dumbly his appointed place in the scheme of things industrial, remains unbitten by ambition, and reacts not at all against subordination. The less mind one has, the less it resents that invasion of personality which is inseparable from large-scale and mechanised enterprises. I have

heard industrial engineers and welfare workers say that industrial efficiency, as working out in our day, puts a premium on mental deficiency."

### *Skill as Knowledge*

To consider, even with moderate fairness and from a few aspects only, such immense issues, it must be realised that skill is not only power. Knowledge is power, but the power called skill yields a special kind of knowledge.

High-grade skill in a musician is accompanied by delicate discrimination between sounds and noises, and between different forms and rhythms. Furthermore, his knowledge drawn from auditory sources is wider and deeper than that of the average man. But nowadays, a man who cannot play a note of music and never tries to sing may have extensive knowledge of its history, its literature, its development, its notation, its physics, physiology, and psychology. Yet his right hand may have no cunning. The pianist of a second-rate cinema possesses that muscular or 'kinæsthetic' knowledge which he has not.

This knowledge has the sparsest vocabulary, no language, and belongs, we are told, to the 'lower' senses. That does not prevent it from existing. And its glories are vouchsafed, not only to the élite, but to the many mental workers who, with all their larger muscles keyed up to twitching-point by an irritating day, use some of them to bang down their desk-lid—a symbolic act if ever there was one—and are off to the tennis-court, the golf-course, the swimming-baths, and the workshop. . . .

In this sense, a fast bowler knows the length of a cricket-pitch, a tennis player the length of a court, a dancer the tempo of a particular dance and the temporal and spatial lengths of the steps, in his muscles.

Skill, then, is cognisance, carried by the muscles, joints, tendons, the skin and, maybe, inner organs. It is the knowledge of a 'cunning' workman. Expounding music to the stone-deaf is like describing skill to the unskilful. To suggest its glories to the ultra-skilled is sheer foolhardiness. And only the medium-skilled—as elsewhere—are likely to appreciate



its problems. It is to them that this chapter is addressed.

Now, from this 'cunning' there issue the joy of work, the pleasure of self-expression, the heightened sense of personality, the increase in self-respect. And with this in mind, as there pass before one's inward eye the figures of William Morris, Henry Ford, and W. R. Morris of Oxford, who can resist reflections of a psychological nature?

### *Different Views of the Function of Work*

Nowadays different well-informed persons do not agree about the function of work. This is not merely of academic interest. As I drafted this book the disagreement had been of great influence in beginning and continuing a five-months' coal stoppage. So we may eventually learn to treat it with respect.

Let us take first the extreme view, that modern industrial efficiency puts a premium on mental deficiency. It implies the belief that a man's daily tasks should give him a chance to realise in his work the kind of satisfaction which has just been described. Some

employers do not offer such work, do not intend to, and a few state this quite uncompromisingly. But this is often logically, if not psychologically, justified by quoting the belief that work should be done as quickly and simply as possible, so that the worker can express himself at another place and time.

Such a belief is valid if it concerns work which the Americans term 'chores.' But this is precisely the kind of work marked down by the inventor of labour-saving apparatus for diminution or complete disappearance. The man doing it, therefore, is presumably a temporary substitute for a machine. Hence his feeling of insecurity.

Furthermore, it should be remembered that the most enthusiastic account of subdivided repetitive labour for others bears the name of one who admits that the prospect of it would appal him.

In fairness, it should be recorded at once that the prospect does not seem to appal everyone. Of such work, the two following accounts, by Englishmen, tally, though their speculations concerning it do not.

“One would think that the deadly monotony of these processes would have a detrimental effect upon the mentality of the operators. The largest firm engaged in the mass-production of motor-cars evidently thought so, for some time ago they issued orders that there should be a general change over every three months. The workmen, however, strongly objected, and the order was modified so as to give anyone wishing variety a chance to change over where opportunity offered. Very few are availing themselves of this chance to vary the monotony of their employment. The majority prefer the higher wages they can undoubtedly earn by continuing an operation in which they have become expert.”

“There are no skilled workmen engaged in mass production, but if any specialist wishes to qualify for the Tool Room, he is allowed to do so. Not many workers, however, show any disposition to improve their status. They make more money and have less responsibility on mass production, although they have to work much harder than if they were engaged on general skilled work.”<sup>1</sup>

<sup>1</sup> These reports are in the account of the *Daily Mail* Trade Union Mission to the United States, 1926.

The value to psychology of such general statements, made after a short visit and a casual inspection, is obviously not great. One may point out one or two flaws. It is illogical to infer, because the men did not wish for a change, that they "did not feel *any* evil effects from the system." The most sincere believer in repetitive work would admit that the relative aspects of frying-pans and fires are internationally constant. Moreover, the nature of the job would keep the worker mentally 'alert'—towards the job. His alertness in other directions, however, would be at least as important. And we are assured by the same reporter that this requirement is fulfilled :

"The degree of comfort enjoyed by the American workers proves that they can think, that they intelligently anticipate the future, and that, in making provision for their old age and in raising the standard of domestic comfort for their wives and children, they are as alive to what makes life worth living as the most highly skilled craftsman anywhere."

At the moment of writing it is difficult for anyone but a statistician to decide which is the

more spectacular, the increased number of new houses owned by the English working man or the increased number of greyhound-racing courses. This discourages generalisations concerning the relative ability of the English and the American working man to realise himself fully. But work which "he is able to perform after a very short training, almost without effort and almost as involuntarily as he draws his breath," is clearly work which might as well be done by anyone else, and by a person of low intelligence. It is the logical development of the view which divides "the men who work with their hands" from those who "think and plan for the men who work with their hands." Mr. Ford, whose phrases these are, regards this absolute division as justifiable, and has an antipathy to the "sinister element that desires to creep in between" these two classes.<sup>1</sup> The designers of *Metropolis* might almost have heard of Mr. Ford.

### *Training for Leisure*

A similar point of view, though it leads to a consideration of the complementary problem,

<sup>1</sup> *My Life and Work*, p. 5.

the existence of the repetitive worker *outside* the works, is that of Mr. Arthur Pound. Aware that books on industry, by being either coldly analytical or violently polemical, are often ineffective, he has tried to write one without these defects. His conclusion is that, in a town dominated by automatic machinery, the facts must be accepted, and that for its inhabitants the educational problem is how to train youth for the right use of *leisure*. Why waste time, he says, teaching city children how to work, when their chief need is to know how to live? He urges that under the conditions of automatic production, education for leisure is education for life, and education for life is education for culture. He insists that the attendant of automatic tools does not live while he is on the job. He exists, against the time when he can begin to live, which is when he leaves the shop.

“It is impossible for him to grow mentally through his work. So he comes to his post as a slave to the galley, and leaves it with the gladness of a convict escaping prison. Psychologists say that a large part of industrial unrest

is due to the inhibition which automatic tools place upon the expression of personality through labour. Be that as it may, the fact is that the hours given to tending automatic machines are given to buy leisure ; and in that leisure the operative lives. He lives in his sports, at the movies, at the prize-fights, . . . as well as at the theatre, the lecture, the library, in the park, and on the front porch of his inamorata."

Mr. Pound believes that leisure is the cream of life, and that with our dull gospel of work for work's sake we have tried desperately to build up an immunity to leisure. He sets up a lively defence of this position, comparing his views of the work and leisure of peasants, skilled mechanics, bankers, and tireless business men. He is certain that " none but an imbecile could find much delight in sharing the daily toil of our mill-workers, so mechanised has it become."

In America, however, " only odd and unusual persons get very much out of leisure. About all that a retired business man feels equal to is golf and musical comedy."

He believes that the educational prescription

—necessary, and not absurd—for the machine age would embody a broadened version of the early Victorian ideal of education.

“That cultural ideal was to fit for leisure those who had leisure—a small minority. With certain reservations in the interests of truth, it may be said to have produced a few first-rate minds and a very considerable number of gentlemen and gentlewomen. Now, because leisure has broadened out to include the majority, we must cultivate gentlemen and gentlewomen *en masse*. What was once a privilege for an arrogant aristocracy has become a necessity for an arrogant democracy. Unless our American gentlemen and gentlewomen appear in due time and in sufficient numbers, civilisation will be wrecked by the machine-made barbarians, unable—though their machines compass the globe—to replace what they have destroyed.”

Fundamental in education for leisure is inculcation of self-restraint. In the factory a man is required to do specified things, and failure to do them results in certain discovery. But in his leisure he is required not to do cer-



tain things, although if he does them, no penalty may follow.

“ But self-restraint is not, of course, all that a man needs in order to make something out of leisure. A man may be ever so self-restrained, and yet be desperately bored at the prospect of spending an hour in his own company. Self-restraint is merely the brake upon the ego-motor ; it will keep the individual from running amok in society, but it will not start anything. Its virtue is negative. What the ego-motor needs is fuel, something upon which it can travel, progress, journey into new realms of thought. The best fuel for the purpose is compounded of interest in the present, understanding of the past, and sympathy with the future. History, literature, science, art, music—all these give to life a meaning, and to leisure, inspiration ; a reasonable concern in all that man has done, is doing, or is about to do upon this planet—with such equipment any fool could use leisure aright. To sow that seed is the first duty of educators, now as always, now more than ever.”

This new way of life accepts the banishment of skill from many branches of industry.

Would leisure increase skills and produce new ones? This seems certain in sport. Swimming, tennis, football, motoring, flying, demanding more skilled performers, will encourage qualitative improvements.

And music, literature, the arts? One would like to believe that skill in them will become more widespread. Yet do the facts encourage us? Radio, for example, will bring high-class performances in music, speech, and drama within the reach of all. It will reveal to many amateurs the quality of their own achievements. But will this, in general, encourage further effort to improve performance, or deepen appreciation? No mean achievement this latter, but not skill.

A succinct account of this intricate set of problems was given in an essay on "Work and Play" by Mr. J. L. Hammond in the *Manchester Guardian* in 1927. It was suggested by a paper read at Oxford by Professor W. R. Lethaby on the dangers of the divorce of art from labour which has resulted from the Industrial Revolution :

"With the changes of the last two centuries,

Professor Lethaby argued, industry has become an unnatural and mischievous medium for man's energy, and the tremendous popularity of sport as an interest engaging the mind of the nation is the result of this bad tendency. For labour, which ought to give a man satisfaction, is now so bleak and stark that men seek to escape from it into another world, and the modern philanthropist, accepting this calamity, tries to turn the labourer to outside diversions. In another direction, too, Professor Lethaby urged, we are discouraging the workman's spirit by the stress we lay on book education. We are in fact creating a psychological hatred of labour, and in the wild excitement of the great collections of spectators at a race-meeting and the general habit of betting he sees the signs of the loss of art and joy that has fallen on man's work."

Mr. Hammond comments :

"It would be a mistake, of course, to regard the absorbing interest in modern sport as a spectacle as a novel phenomenon. The games of the circus in Rome, games which were held on sixty-six days in the year in the time of Augustus and on 135 days in the year in the

time of Marcus Aurelius, will occur to the mind at once. But Professor Lethaby would remind us that in looking back to Imperial Rome we are looking back to a society which had also lost interest in work. The slave had pushed out the artisan, and the artisan had become a mere pensioner living on doles and games. It would be a mistake also to argue that all labour before the Industrial Revolution was pleasant and interesting. In long periods of man's history it seemed so unpleasant and uninteresting that it was thrust by the strong on to the shoulders of slaves. . . .

“Nobody thinks that the world can go back on the Industrial Revolution and restore what we lost in passing into this new world. The task set to us is to make this new world a stimulus and education to the best impulses and faculties of man. The more difficult the task, the greater the value of happiness and success.

“One way of correcting the bad influences of mass-production is to give to the worker some personal sense of responsibility and partnership in the efficiency of the concern in which he is engaged. It is one of the disadvantages of modern industrial life that the individual is

apt to be lost in a crowd. Everything is on the great scale. He is one of a huge number of workers ; he deals with officials who administer schemes affecting great classes of the population ; in his own union his own share of responsible power is insignificant. If a man's work is uninteresting—and much work must remain uninteresting even when every effort is made to find scope for a man's imagination—it is all the more important to make his part in the common life and fortunes of his undertaking interesting and stimulating, a tonic to his self-respect. And if we recognise that much that the craftsman's work did for a man's faculties and character is left undone by modern work, it becomes more important to supplement by other means the incomplete experience of his industrial and technical life.

“In other words, we have to look to education, in the widest sense of the term, as the art and discipline that qualifies men of leisure, to draw out the tastes and gifts that modern work is so apt to leave idle. It is when men and women cannot find satisfaction either in their work or in their leisure that they seek for continual and feverish excitement.”

*Certain Leisure-skills are Increasing*

This seems the time to mention what some readers may have been awaiting with impatience : that in England, at any rate, some leisure-skills are increasing both extensively and intensively. More people are practising them, and they are being brought to greater perfection, or at least complexity. This is especially true of outdoor sports. The increasing number of public tennis-courts and swimming-baths (to name only two examples) cannot fail to strike everyone. Swimming, as practised by its more advanced exponents, with the modern introduction of scientifically thought-out strokes, is now qualitatively superior to anything in earlier years.

Other leisure-skills which are more widespread are dancing, motoring, and the amateur construction of wireless apparatus. As compared with thirty years ago this is true of dancing ; and obviously of motoring and 'radio.' Moreover, the last two activities imply some mechanical skill and considerable mechanical knowledge among many people who thirty

years ago would not have possessed any corresponding skill or knowledge.

It should also be remembered that in some centres of skill-distillation, e.g. in some well-known English factories which utilise subdivided work, excellent dramatic, musical, and athletic clubs encourage the workers to acquire types of skills and knowledge, unthinkable in the olden days when every house was a self-contained industrial unit.

These facts intensify the interest of the plan expounded by (among others) Mr. Arthur Pound, that education for leisure should be the aim in such a community.

The optimistic view is conceivable that we may look forward to a time when all 'chores' will be done by machinery. All co-ordinated human activities would then be skilled, interesting work, leisure-skills or play.

### *Is Skill To-day Worth While?*

This question can be interpreted in two ways:

(1) Is skill worth while, *absolutely*, as an element in the 'good life'? and

(2) Is skill worth while *economically*, on a mere balancing of expenses against receipts?

These two questions are not quite distinct. But if the probability can be demonstrated of the substitution of skill in games or leisure for skill in work, i.e. if the elimination of work-skill is incidental to a reorganisation of production which increases both wealth and leisure-skill, the two can be treated separately.

The answer to question (1) is given on pages 149 ff. Skill *has* an absolute value. Its loss or degradation is an absolute loss, both psychologically and physiologically.

The answer to (2) depends upon our judgment of economic tendencies.<sup>1</sup> These are conflicting. There is the 'Ford' tendency to simplify operations. This would substitute the use of jigs and gauges for all those processes implied in the activity of the craftsman's 'eye.' Laboratory tests would replace, as far as

<sup>1</sup> I am indebted to Professor Henry Clay for the material of pages 174-8, contained in comments which he kindly made upon the present chapter. Though I have paraphrased them, the ideas are entirely his.



possible, his judgment of material. All such changes tend towards the elimination of skill.

On the other hand, the organisation of production which results requires more workers of the highest grade in the laboratory, setting up machines, in the tool-room, etc., and a higher general level of intelligence. If skill and intelligence were mutually exclusive concepts, this tendency would seem to be towards requiring less skill but more intelligence. So far as skill is knowledge, less knowledge of materials and processes, but more knowledge of machinery in general, arithmetic, use of blue-prints, etc., would be required.

To some extent such tendencies depend upon social choice. As a society (if we could act as a society) we can either consume more articles produced without skill, or fewer things but made with much skill—e.g. masses of cheap machine-made furniture or a few good pieces. Commercial social pressure is towards the former alternative. The choice also presents itself in the making of the same products. Thus American industry, dependent largely on a population with little industrial experience,

is bound to organise by simplifying processes and restricting the number of skilled posts. English industry, with large supplies of 'skilled' workers, is able to leave much more to the operative. So it organises with, roughly, an equal amount of skilled and unskilled labour. If, for example, following Mr. Mallon's proposals on page 178, the supply of skilled men were maintained or increased, it would help to determine the lines on which industry would develop, in such a way as to ensure jobs, so far as any jobs can be ensured. For this country would concentrate even more on the pioneer and 'special' and 'quality' products in which our chief strength has lain. And this for two reasons : (1) in these lines the volume of production is insufficient to make simplification and specialised appliances worth while ; (2) the variety, quality, and novelty of the work make it cheaper to rely upon the adaptability and resource of a skilled force than to work out, for routine automatic workers, all the details for every job. While this development is a possibility, present tendencies seem to be in the other direction.

There is, naturally, a connection between volume of uniform output and method of work. If the volume is large, simplification and subdivision will be the most economical. If the volume is small, it will not be worth while to incur the overhead expenses involved in 'flow' production, and it will be cheaper to employ a staff of highly skilled men. These facts were illustrated during the War, when the numbers of a highly complicated engine required for aeroplanes increased enormously. One skilled man's job was subdivided into eleven women's jobs, with no change in quality.

Professor Clay's view is that 'skill' and 'skilled' are used in industry rather to connote economic *grade* than any definite qualifications or qualities. Yet members of the grade, to be regarded by others as belonging to it, must have some if not all of the following qualifications or characteristics :

1. Their work must be manual work (and, though this is an economic distinction purely, wage-work).
2. It must involve manipulative expertness.

This may appear in speed, e.g. mule-spinning ; in fineness, e.g. turning ; in range and adaptability, e.g. fitter, plumber ; in overcoming an intrinsic difficulty, e.g. ' throwing ' in pottery, and/or judgment, based on knowledge of material, and/or judgment based on knowledge of certain types of mechanism, e.g. engine-driver, loom-tackler.

*Great Britain losing her Skilled Workmen*

In Great Britain the situation is complicated by the fact that though in many trades the Americans are ' distilling ' skill, when they do want a highly skilled man they look (and up to now, successfully) to other countries, including Britain.

Mr. J. J. Mallon, Warden of Toynbee Hall, London, says that in the immediate future we shall find ourselves short of skilled workmen. We are losing them in two ways—first, because we are not recruiting them, and secondly, because of the low rates of pay in skilled trades. Skilled men are going in large numbers to other countries, particularly to America. So although we still produce

skilled men, others often get the benefit of them.<sup>1</sup>

The remedies proposed by Mr. Mallon are better provision for vocational guidance, the raising of the school-leaving age to fifteen certainly, and to sixteen if possible, and continued education up to the age of eighteen. These recommendations seem to imply the trust that there will be jobs for these skilled persons when they have been trained.

In her interesting book *Taylor—Gilbreth—Ford*, I. M. Witte has brought together several other points of view (including some from Germany and Russia), impossible to expound briefly here.

Let us attempt to sum up the position. In our present life many kinds of skill have subsided. They will rise again only at the call of strikes, war, revolution, or physical catastrophe. Other skills are otiose, except when

<sup>1</sup> Mr. J. T. Kay, member of the National Union of Foundry Workers, is quoted in the *Daily Mail* report as saying that the supply of skilled men from Britain will come to an end some day, and the U.S. will still be wanting skilled men.

retained for love of the activities which they involve. Some skills have been distilled. Their rarer ingredients are now reserved for the elect, who may improve them beyond recognition. Skill in outdoor sports is growing, extensively and intensively. In them there is increasing democratisation ; of work-skills, where they are suffered to exist, the opposite is true.

Any one statement in this summary may appear axiomatic to one type of thinker. But it will certainly be postulated defiantly or apologetically by another, deplored by a third, denounced by a fourth, palliated by a fifth.

I have tried to depict the situation, and to trace some of the factors which have produced it. To solve its many problems will be the world's work. It is hoped at least that this attempt will not obscure the issues.

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